

Air Conditioning & REFRIGERATION

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NEWS

Treasury Would Like To Double Refrigerator Tax

Phonographs, Records May Be Included In New Program

WASHINGTON, D. C.—A heavy increase in excise taxes on mechanical refrigerators is included in recommendations made to the Houseways and means committee by Secretary of the Treasury Morgenthau at initial hearings on the federal government's new tax program, in which approximately \$3,500,000,000 in new taxation is sought.

According to the recommendation, mechanical refrigerators would be taxed 10%, an increase of 4 1/2% over the present rate, providing an estimated annual revenue increase of \$9,800,000. Tax on radio sets and parts also would be upped to 10% from the present 5 1/2% rate, for an estimated annual increase of \$6,300,000; and phonographs and records (hitherto untaxed) would be taxed 10%, providing an estimated \$4,500,000 additional revenue.

In addition to increases in the rates of several existing excise taxes, a number of new commodities would be added to the list in the new tax program. These increases and additions would add an estimated \$867,000,000 annually to the national revenue.

Kelvinator Earned Million 1st Quarter

DETROIT—Nash-Kelvinator Corp. reports, for the quarter ended March 31, a net profit of \$1,040,527, after all charges including provision for income tax at the existing rates. This compares with a profit of \$382,941 for the corresponding quarter of the previous fiscal year.

For the first six months of the fiscal year, starting Oct. 1, 1940, the net after all charges is \$1,127,657, as compared with \$405,939 for the first half-year period of the preceding year.

OPM Restricts Use Of Cork Insulation

WASHINGTON, D. C.—The Office of Production Management disclosed April 25 that it was taking steps with the cooperation of affected manufacturers to conserve the United States supply of cork, which is obtained from countries bordering the western Mediterranean.

Telegrams were dispatched by the materials branch of the OPM production division to all cork insulation manufacturers, asking them to help curtail the use of corkboard for roof insulation, except for the roofs of refrigerated spaces during the remainder of 1941. The telegrams requested that the manufacturers:

1—Fill only orders for such use, accepted on or before the date of the request, except in such instances where the OPM recommends a special exception because the order is vital to the defense program.

2—Notify distributors and dealers of the OPM's request and seek the cooperation of the distributors and dealers.

3—Notify persons to whom quotations on corkboard for roof insulation are outstanding and attempt to enlist the cooperation of such persons in releasing the manufacturer from the quotation.

(Concluded on Page 2, Column 3)

Ice Tray Substitute Plans Taking Form

White 'Norcelain' Used By Norge

DETROIT—A new type of ice cube tray made of steel, finished in "Norcelain," and provided with a rubber grid, has just been introduced by Norge division, Borg-Warner Corp.

High thermal conductivity, cleanliness, and automatic ice cube ejection are the features claimed for the new tray. It is possible to flex the tray to loosen one or more cubes without injuring the finish, it is said.

"Norcelain" is a finish which was used on the agitator in Norge washers in 1939 and 1940.

"The new tray is a development and improvement of a type formerly used only in the highest-priced Norge models," declared H. E. Blood, Norge president.

Its glistening white finish gives a note of beauty which matches the refrigerator interiors. The tray is flexible, with a rubber grid, and ice cubes eject themselves automatically with a slight flexing of the tray.

Retail Refrigerator Sales Gains Pile Up

All Appliances Show Gain In Virginia

ALEXANDRIA, Va.—Continuing their steady climb upwards, sales of electric refrigerators, ranges, and water heaters in the territory of Virginia Public Service Co. for the month of March surpassed by a small margin the sales recorded during the same month of last year.

Unit sales of refrigerators (including both household and commercial equipment) for the month totaled 1,114, compared with 977 in March, 1940; range sales reached 153, against 108; and water heater sales were 52, compared with 44.

Appliance	First Quarter 1941	First Quarter 1940
Refrigerators (including com'l) ..	2,188	1,682
Ranges	374	288
Water Heaters	119	65

Knoxville Refrigerator Sales Nearly Double

KNOXVILLE, Tenn.—Total of 501 household electric refrigerators were sold during March by Knoxville dealers at an average price of \$145, compared with the 377 units sold at an average price of \$147 in March of last year, according to statistics released by Knoxville Electric Power & Water Board.

Commercial refrigerator sales for the month totaled eight units at an average price of \$763.

Household range sales also gained considerably over last year, totaling 232 units at an average price of \$144, compared with 154 units at an average price of \$146 reported for March, 1940.

Appliance	No. of Units	Average Sales Price
Refrigerators (Household)	501	145
Refrigerators (Commercial)	8	763
Ranges	232	144
Water Heaters	127	76
Washing Machines	287	73

February Dallas Sales

Beat 2 Months In '40

DALLAS, Tex.—More household electric refrigerators were sold in Dallas during February of this year than during the combined months of January and February in 1940, ac-

(Concluded on Page 2, Column 3)

Most Producers Will Soon Offer Complete Sets

Wire Tray Utilizes Paper Cube Cups

DETROIT—An entirely new development in household electric refrigerator ice cube tray construction, consisting of wire ice cube trays supporting paper cube cups, is now being introduced by the Swift Mfg. Co. of this city.

Known as the "Sanitray" the new product can be supplied to fit virtually all current models of household refrigerators, and will be sold to distributors and dealers as well as manufacturers.

Sanitray ice cube trays are formed from plated steel wire, welded into a frame to treat the specially treated "Sanicube" paper cube cups. These cups are disposable, clean cups being used for each freezing. The cups are treated to provide structural strength, and have been so designed as to produce an untainted, larger-than-normal ice cube. The special sanitary feature is gained through the fact that there is no handling of the cube.

Here is the ice tray situation as of today:

Frigidaire is shipping tinned copper trays with rubber grids.

Kelvinator will equip its refrigerators with tinned copper trays with rubber grids.

Crosley is shipping tinned copper trays with ice-breaking metal grids. Westinghouse is shipping rubber tray along with porcelain dessert tray (without grids) to fill out its ice tray complement.

General Electric is reported to be ready to begin shipment May 2 of tinned copper trays with flexible chrome steel grids.

Philco has announced plans to supply tin-plated copper ice trays.

Norge has just brought out a new steel tray finished in "Norcelain" and equipped with rubber grids.

Gale Products is supplying "free-cube" rubber trays to fill out its complement of ice trays.

Coldspot is apparently not yet ready with a substitute tray, although announcement has been made that a substitute tray will be supplied.

Montgomery Ward has made no definite announcement as yet, but will probably substitute tinned copper trays for the present. Rumor has it that Ward's is experimenting with a plastic tray for future use.

Gale Designs Two New Room Coolers

GALESBURG, Ill.—Gale Products' "Mountaineer" line of window-type room coolers this year consists of two newly designed models known as the "Lake Louise" and the "Lake Placid."

The "Lake Louise" model C-50 has a cooling capacity up to 6,100 B.t.u. and is designed for rooms up to 350 sq. ft. in area, depending on the heat load. It is equipped with a Gale Products 2-cylinder, 1/2-hp. "Freon-12" condensing unit. Fresh air is drawn in constantly through the window. A propeller-type fan delivers air through a rotating-type grille in the front.

Cabinet is made of furniture steel.

(Concluded on Page 2, Column 1)

High-Hatting Him



The Detroit Free Press

Rema Completes Program For Its Annual Meeting

Selection of Space For All-Industry Show On Final Day

FRENCH LICK, Ind.—From the advance number of requests for hotel accommodations already received by the French Lick Springs hotel from refrigeration and air conditioning executives, all indications point to a larger attendance at the coming Refrigeration Equipment Manufacturers Association's spring meeting, May 7-8-9, than was represented at its 1940 fall meeting—the largest turnout in its history.

Reservations also have been made by the National Refrigeration Supply Jobbers Association for the members of its board of directors who also are planning to hold a board meeting in French Lick May 6-7. In addition to the members of the board, the Manufacturers Contact committee from the N.R.S.J.A. also will meet in French Lick on May 6 and remain for a conference on May 7 with the Jobbers Relations committee of Rema.

A similar contact committee from the Refrigeration Service Engineers Society will assemble at French Lick on May 7 for a conference with Rema's R.S.E.S. Relations committee. It is understood that committees from a couple of other organizations within the industry also may be represented for conferences with other contact committees from Rema.

In addition to the conference committees, most of the other active committees of Rema will hold meetings in French Lick on May 7 preparatory to the opening of the association's convention on the morning of May 8 at which J. D. Colyer, vice president, Wolverine Tube Co., and chairman of the program committee, will present the speakers.

The meeting program Thursday morning, May 8, will include three talks.

"Selection, Training, and Placement of Salesmen" will be the subject of the address by W. A. Sredensche, assistant manager, trade relations, General Electric Co., Schenectady.

Robert LeBaron, sales manager, Virginia Smelting Co., West Norfolk, Va., will discuss "Methods of Collection and Analysis of Data on Field Conditions."

The third talk will be a report on the annual meeting of the United States Chamber of Commerce by W. C. Allen, vice president, Modern Equipment Corp., who with Earl A. Vallee, vice president, Automatic Products Co., was a delegate from Rema to this meeting.

(Concluded on Page 16, Column 2)

Copper Tubing Work on Defense Plant Job Lures Servicemen

ST. LOUIS—A temporary shortage of competent refrigeration service men is seen as a likelihood by several St. Louis refrigeration dealers as a result of labor demands in connection with construction of a new manufacturing ordnance plant in the national defense program here.

The new plant, which will manufacture trinitrotoluene (TNT), will use thousands of feet of copper tubing for distilling and transferring high explosive chemicals. Contractors have "drafted" most of the city's refrigeration service men for installation of tubing, with which their regular work has made them familiar. More than 200 service men answered the first call.

'Home Defense' Against Heat



"Bobbie" Miller, popular musician and entertainer, may not have known it but her dress and the cover of the magazine she is holding tie in with Gale Products' 1941 advertising theme on its room coolers—"Defense—against relentless heat and humidity."

Gale Adds 2 New Units To Room Cooler Line

(Concluded from Page 1, Column 4)

Bonderized. Acoustical insulation treatment is used. Finish of the cabinet inside of the room is burled walnut grain.

The "Lake Placid" model G-5R has a capacity up to 4,700 B.t.u. and is designed primarily for the vast bedroom and private office market. It is powered by a 2-cylinder, $\frac{1}{3}$ -hp. methyl chloride condensing unit. Air treatment is the same as in the other model.

The "Lake Placid" cabinet is finished in Silver Taupe baked Dulux, and has acoustical insulation.

OPM To Curb Use Of Cork Insulation

(Concluded from Page 1, Column 1)

In cases where manufacturers are unable to obtain release from outstanding quotations, they were asked to refer the facts to the OPM for its consideration.

It was announced that all of the cork insulation producers had given assurance of their cooperation. Those to whom the telegrams were sent included: H. W. Prentis, president, Armstrong Cork Co., Lancaster, Pa.; R. R. John, Cork Insulation Co., New York City; F. R. Mitchell, Mitchell and Smith, Inc., Detroit; H. H. Burns, Mundet Cork Corp., Brooklyn, N. Y.; and H. H. Rose, United Cork Corp., Kearny, N. J.

The United States is dependent for its cork supply upon Spain, Portugal, and north Africa. Shipments from French territory in north Africa, an important source, have been cut off since Germany defeated France. Purchases of cork from Spain and Portugal have been increased but it is necessary to conserve the supply for Army and Navy and essential civilian needs.

Servel Declares Dividend

EVANSVILLE, Ind.—Servel, Inc. has declared a dividend of 25 cents on the common stock of the company, payable June 1 to stockholders of record May 14. The same amount was paid by the company in March of this year.

Norge Cooks Up Something New



When Norge held a preview of its 7-model line of electric ranges to be announced early in May, Range Sales Manager Arthur Kitson broiled a steak in record time for the group. Simple, fast, thorough broiling facilities will be a feature of the new range line.

Instead of 'Junking' Obsolete Trade-ins, Dealer Has Them Sold at Auction To Make Profit

ST. LOUIS—What to do about obsolete, or "orphan" refrigerators traded in on the purchase of new appliances is a problem which bothers many dealers who are finding trade-ins more and more prevalent. Particularly a source of worry are those boxes unfit for reconditioning, or useless for any purpose except junk.

May Appliance Co., General Electric dealership here, has developed what Edward May, president, believes is a satisfactory solution to the problem. In its present location for the past five years, May Appliance Co. has consistently averaged 100 trade-in refrigerators per year—among which are some 25 to 40 "junk" models which are unsaleable under the regular merchandising plan of the store.

Instead of breaking these up for parts, or turning them over to the junkman, as many dealers are accustomed to do, Mr. May has found actual profit exists by sending them to the Selkirk Auction House, which has been able to dispose of every refrigerator unworthy of reconditioning, and always at a price at least

\$2 or \$3 higher than the price which was allowed on it.

Whenever an appraisal reveals that a trade-in refrigerator is beyond reconditioning, Mr. May immediately assigns it to the auction house. A telephone call is all that is needed—whereupon the auction house management picks up the refrigerator, features it on auction the following day, and sells it at prices ranging from \$15 to \$25.

"We sell only orphan boxes," Mr. May said, "or those whose parts are so badly damaged that we cannot replace them and still make a profit on resale. Most of those sold at the auction house are purchased by refrigeration service men, who see in them a chance to earn a few dollars by reconditioning them in their own shop. Others are bought by summer-camp residents who wish to use them away from their homes. In this way, we have no service worries, and never fail to realize at least an even break on the deal."

The average price for boxes sold in this way is \$15—although there have been instances in which the price went up as high as \$50.

Municipal Utility Will Continue Dealer Aids

Borg-Warner Nets 2 Million Profit

CHICAGO—Net income of \$2,367,597, after excess profits, taxes, etc., has been announced for the quarter ended March 31 by Borg-Warner Corp. This includes income of the Norge division of the corporation. These earnings are equal to \$1.01 a share on common stock.

Revised net income for the first quarter of 1940 is reported as \$1,475,218, or 63 cents a share. These figures are based on the application of the 1940 revenue act in its final form to that quarter.

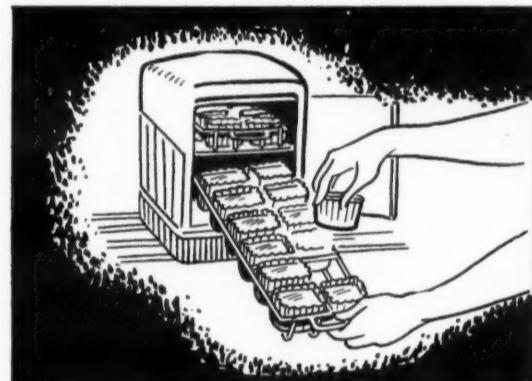
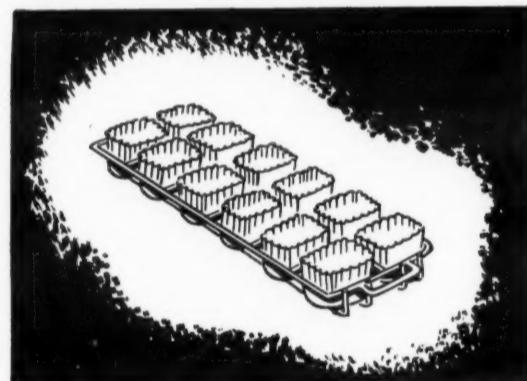
FROM
**1/4 to 25 TONS
OF REFRIGERATION**

Brunner Refrigerating and Air Conditioning equipment comprises air and water cooled condensing units for practically all types of commercial applications up to and including 25 tons of refrigeration. Catalog promptly on request. Brunner Manufacturing Co., Utica, N. Y., U. S. A.

BRUNNER
FOR YEARS THE SYMBOL OF QUALITY

NEW! REVOLUTIONARY!

Sanitray* Wire Ice Cube Trays



with the Exclusive Sanicube* Feature!

The Answer to Your Ice Cube Tray Problems

AVAILABLE NOW — LOW COST — SANITARY — CRYSTAL CLEAR ICE

Here is a unique advance in refrigeration engineering.

SANITRAY ice cube trays are formed from highly finished steel wire, welded into a gleaming frame to support the specially treated SANICUBE paper cube cups. The entire assembly is simple, inexpensive and foolproof, producing ice cubes which are large, remarkably clear and free from taint.

Corrugated construction of the disposable SANICUBE cup offers quick release of one cube or a trayful with the utmost ease. Cube cups can be removed from or placed in the tray individually and at the refrigerator. Your customers will especially appreciate the SANICUBE cleanliness feature, which eliminates all handling of the cube itself.

SANITRAY units are now in production. They can be supplied in quantities to fit virtually all electric refrigerators. Manufacturers, distributors, jobbers and dealers can obtain prompt shipment, for materials used in these trays are not subject to government priorities.

Write, wire or phone today for details.

Features of the SANITRAY*

★ LOW COST

Inexpensive SANITRAY and SANICUBE cup construction makes them ideal for original equipment and replacement use.

★ SANITARY

SANICUBE cups are disposable. Clean, fresh cups are used for each freezing.

★ CLEARER, LARGER CUBES

SANICUBE cups are specially treated to provide structural strength, produce larger, crystal clear, untainted cubes.

★ CUBES EASILY REMOVED

Corrugated construction and special material of the SANICUBE cup practically eliminate difficulty in releasing cube from the tray or from the cup. One cube or a trayful in a jiffy without tools or messy handling.

*Patents Pending

SWIFT Manufacturing Co., 247 McDougall Ave., Detroit, Mich.

Locker Plant Dinner Served Building Group

CHICAGO—Members of the Building Industries Congress, which has headquarters in the Merchandise Mart, got the "low-down" on frozen food locker storage systems at a recent meeting of the organization. John Field, who is in charge of low temperature refrigeration in the Middle West for Carrier was guest speaker, and a Carrier movie was shown, depicting interesting phases of the growing locker industry.

As an "added attraction" all food served at the dinner preceding the meeting was shipped from the Carrier-equipped locker storage plant owned by A. Held, at Jackson, Wis. The menu included fresh frozen shrimps, top quality steaks, green peas, lima beans, fruit salad, and fresh strawberries for dessert.

The Building Industries Congress is made up of representatives of many concerns engaged in various branches of the building industry, including material suppliers, architects, contractors, associations, and publications. Henry G. Strong, Chicago manager for Carrier, is a vice president of the congress, and Mark Mooney of the Carrier Chicago office is co-chairman of the program and entertainment committee.

A. H. Reinach Forms Own Distributorship

LOS ANGELES—A. H. Reinach has formed the Pacific Refrigeration Sales & Service Co. with headquarters at 737 N. Highland Ave. here, to act as distributor for a complete line of commercial refrigeration equipment (both machines and cabinets). Associated with him in this new enterprise will be two men who have been active in the refrigeration industry on the West Coast for a number of years.

Mr. Reinach resigned as assistant sales manager of the Super-Cold Corp. to form this new business. Prior to that he had been in an executive capacity with Kelvinator for several years, at one time being in charge of the liquid cooling sales division.

Air Cooling Used To Build Precision Parts

WAYNESBORO, Pa.—Precision grinding spindles turning at the rate of 50,000 revolutions per minute are being manufactured at Landis Tool Co. here, with the help of air conditioning.

Operating at speeds of 50,000 r.p.m., these spindles must be absolutely true, perfectly balanced, and free from any vibration. It was discovered in the laboratory that metal parts for these high speed spindles—due to expansion and contraction caused by atmospheric variations—could only be assembled with perfect accuracy in an air conditioned room.

Two air conditioning units, which maintain a uniform temperature of 70° F., were installed in a specially-constructed assembly room at the plant. The room is carefully insulated, with double walls, windows, and doors keeping it sealed tight from outside influences. Only filtered, conditioned air is admitted through the two air conditioning units, which supply 600 c.f.m. of air to the room.

Landis Tool Co. specializes in manufacturing high production grinding machines for turning out a myriad of precision parts for the automotive, airplane, ball bearing, electrical, farm machinery, and steel industries, and for metal working plants in general. The spindles assembled in this air conditioned laboratory carry the grinding wheel on a specialized type of machine used by the ball bearing industry.

K.Q. Meade Appointed

DALLAS, Tex.—K. Q. Meade has been appointed sales supervisor for the Dallas-Ft. Worth district of Super-Cold Southwest Co.

Frank C. Fallon, district manager, reports that a remodeled showroom and an increased stock contributed toward the company's 33% sales increase during the first two months.

Conditioning Booms Barber's Business

PHILADELPHIA—Air conditioning turned the slack summer season from mid-June to mid-September into the "peak business season" for the Central Barber Shop, when an air conditioning system was installed last year. Business picked up to such an extent after installing air conditioning that it became necessary not only to put on additional barbers, but also to arrange an appointment system for some of the busier patrons.

According to David Berkowitz, owner of the shop, shortly after the system was put in operation many of the regular two-week customers were noticed coming in between times for shaves and massages. At first Mr. Berkowitz thought this additional business was just a "good month," but when the business increase continued through the summer, he gave full credit to the air conditioning system.

Universal Has Loss In First Quarter

MARION, Ohio—Universal Cooler Corp. for the quarter ended March 31, subject to audit and year-end adjustment, shows a net loss of \$106,423, after depreciation and other charges. This compares with a net profit of \$31,425 in the same period of last year.

For the six months ended March 31, the net loss was \$174,083, compared with a net profit of \$19,316 or 19 cents a share on Class A stock in the corresponding period a year ago.

Carbondale New York Changes Name

NEW YORK CITY—Effective May 1, Arthur E. Magher Co., Inc., will be the new corporate name of Carbondale New York Co., Inc., it has been announced.

3 Unions' Strike At Shadbolt & Boyd Is Settled

MILWAUKEE—The strike of three AFL unions at the Shadbolt & Boyd Co., wholesale appliance dealer, which started April 2, was settled April 18 and the workers returned to their jobs immediately.

The new contract, worked out by company and union representatives with Maj. James P. Holmes, department of labor conciliator, provides for wage increases of eight to 20 cents an hour, vacations with pay, sick leave, a method for settling employees' grievances, and seniority rights.

In addition, the unions were recognized as sole bargaining agencies in the open shop agreement, company representatives said. Labor organizations involved are the Retail Clerks A. F. of L. Unions, Office Workers Union No. 16456, and the Truck Driver Joint Council No. 50.

Perlick Moves Into New Building

MILWAUKEE—All manufacturing operations of R. Perlick Brass Co., manufacturer of direct draw beer dispensing equipment, are now housed in a four-story building at 3110 W. Meinecke Ave. here which the firm recently purchased.

This building, providing 50,000 sq. ft. of working area along a railroad siding, marks the latest expansion move of the Perlick company, founded 23 years ago.

Processing Prolongs Life Of Cream In Refrigerator

GUSTINE, Calif.—Processed cream that is claimed to keep indefinitely under household refrigeration is being produced by the Gustine Creamery here. George Ginrod invented the new process.

MAKE MONEY IN COOLING!

INVESTIGATE CHRYSLER AIRTEMP'S SPECIAL SPRING OFFER. DAYTON SURVEY SHOWS 22.5% OF ALL BUSINESSES CALLED UPON ARE GOING TO BUY COOLING



The 3 h. p. packaged cooling unit for stores, offices and restaurants. Exclusive radial compressor hermetically sealed in bath of oil saves service expense, operates at low cost. Five h. p. model, same design, available for larger spaces. Chrysler warranted.

READ THE FACTS—MAIL THE COUPON!

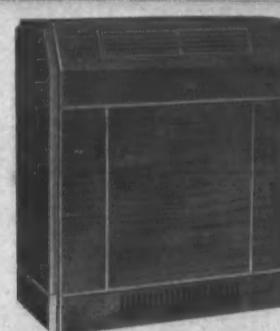
Record-Breaking Sales are predicted for air-conditioning this spring. Aggressive cooling dealers with the right line will make substantial profits. A survey just completed among 164 businesses in 23 classifications in Dayton, Ohio, shows that 22.5% are prospects and 10% expect to buy at once. Most of the rest want summer cooling but think they "can't afford it". Fact is they can't afford to be without it! It pays a profit—in increased business.

A Special Deal: To help Airtemp dealers get packaged cooling business, we offer an exceptional deal for prompt action. It includes $\frac{1}{3}$, $\frac{1}{2}$ and $\frac{3}{4}$ h. p. room coolers at a price well below the market, to go with competitively priced 3 and 5 h. p. units.



Was \$1150 - NOW \$8900*

*Suggested "Leader" Prices.



Was \$2700 - NOW \$13750*

Was \$3000 - NOW \$25770*

Mail the coupon now! This offer is for immediate action only.

AIRTEMP DIVISION, DEPT. D, CHRYSLER CORPORATION
Dayton, Ohio

Gentlemen: Send me complete details on your Special Proposition for cooling dealers.

Name _____

Address _____

City _____ State _____

CHRYSLER AIRTEMP
AIRTEMP DIVISION OF CHRYSLER



CORPORATION, DAYTON, OHIO

Air Conditioning Service Men Clean and Check Systems in Spring 'Start-ups'



Ted Peterson of Mechanical Heat & Cold, Inc., Detroit, checks the control panel board of an air conditioning system when it is made ready for operation in the spring.

Spring is the most important season for air conditioning service men. When the first warm days arrive all systems that have been installed for one or more years must be prepared for a summer of operation, and adjusted to give peak efficiency. While the owner may neglect to call for a service man to pump down the compressor in the fall, he is almost certain to telephone for a start-up the first day that cooling is needed.

In order to level out this seasonal rush, service managers make a practice of scheduling start-ups over a period of several weeks before the actual cooling season begins.

Ted Peterson, veteran of 16 years in the service department of Mechanical Heat & Cold, Inc., Westinghouse distributor in Detroit, asserts that all air conditioning systems should be pumped down in the fall, as a precaution against losing the refrigerant charge through a leak in the piping. But as not all owners are willing to pay for this service, pumping down the refrigerant may become the first operation in the spring start-up.

After the system is pumped down and the charge of gas bled off in

the receiver, the refrigerant strainer is removed and cleaned. This is done with a solution of carbon tetrachloride, a common solvent which dries very rapidly. As the solution dries on the refrigerant screen, dirt is loosened, and may be knocked off the surface of the screen by a gentle tapping. Condition of the refrigerant strainer may be checked by turning the beam of a flashlight down through the glass inspection port that is on the top of most strainers. When the strainer is clean, the bottom of the unit can easily be seen through the clean refrigerant.

The automatic water valve and strainer located in the water line leading to the refrigerating machine should be removed and carefully cleaned.

Air conditioning coils must be thoroughly cleaned with a stiff brush, and where possible, with a strong spray of water from an ordinary hose. It is important that all coil surfaces be absolutely free of any accumulation of dirt, to facilitate the transfer of heat from the air to the refrigerant in the coils. Dirty coils will tend to decrease efficiency.

All air filters must be cleaned

according to the best established practice for the type of filter used in the system. Permanent hair glass filters are first immersed in a solution of Oakite and water, about two handfuls of the cleaner being added to 5 gallons of water. After the filter sections are soaked in this solution for a short time, additional dirt is removed by washing them with an ordinary garden hose.

Steel wool filters may be cleaned by shaking or beating with a stick of wood, such as an ordinary broom handle, or the entire wool filter pad may be replaced. Viscous coated steel wool filters of certain types may be cleaned by placing the filters in an oil solvent, such as naphtha, after which they are dried with compressed air, and re-coated with oil.

Cellular paper filters are usually replaced, but if the sections are not too dirty, several layers of the paper may be ripped out, leaving a clean filter surface exposed.

Glass wool, viscous coated filters of the standard type are replaced with new filters.

OWNERS NEGLECT FILTERS

On this point, Mr. Peterson reports that many air conditioning service calls result from owners who attempt to save money by buying and changing their own throw-away filters. He has found that many owners, and managers of chain stores, neglect to replace the filters with new units at the proper time, and then call up, reporting "no cooling" or "coils frosting." When the service call is answered, dirty filters are discovered immediately, when little or nothing else may be wrong with the system.

Mr. Peterson believes that owners of air conditioning systems should rely on a dependable service organization to replace filters when they are dirty, thus saving the expense of useless service calls during hot weather, and at the same time keeping the system operating at top efficiency. Most air conditioning organizations have standard service contracts available, which include changing filters along with other necessary services.

JOINTS TIGHTENED

All packing glands and joints should be tightened at the start of each cooling season. Mr. Peterson has found that a certain amount of shrinkage occurs in all gaskets during the winter months, and if the joints are not tightened before the machine is started up, leaks may occur as soon as the system is placed in operation.

After the system is believed to be thoroughly tight, the refrigerant is let out of the receiver and the job can be tested for leaks. This is usually done with a Prest-O-Lite leak-detector torch. When a leak occurs, the torch flame will turn from yellow to green.

All motor and fan bearings are oiled, and any belts on the system are checked for alignment.

CONTROLS ADJUSTED

One of the most important phases of the start-up is checking all controls to see that they operate properly. The owner is dependent upon these controls for fully automatic operation of the system throughout the entire cooling season, and for this reason controls must be gone over with considerable care. In many cases the controls will require only adjustment, but in other instances controls must be repaired and defective parts replaced.

As an example of what may be encountered in checking over controls, Mr. Peterson recently found that a "permanent" magnet in a high-low pressure switch had become de-magnetized, and had to be replaced before the control would operate properly. This is just one of the "things that never happen" that keep an air conditioning service man constantly on the alert.

SOLENOID VALVES TESTED

All solenoid valves are tested, to see that they operate properly, and the points of all magnetic controls and relays are cleaned and adjusted. The system is then operated for a brief period of time to see if it cycles too often. If this is the case, the necessary adjustments are made to lengthen the operating cycle.

Expansion valves cannot be adjusted during cool weather, as the refrigerant flow through the coils must be adjusted for heavier load conditions, which occur only on a hot day. For this reason the service man makes one call back, during hot weather, to make this adjustment.

At the same time the thermostat is

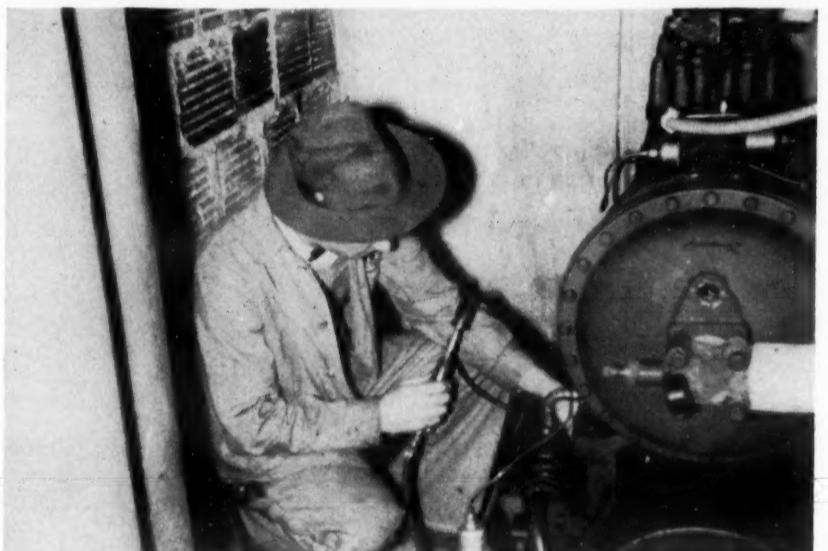
Getting Ready For a Hot Summer



Filters are carefully cleaned during the "start-up." Here Van Vliet is placing a Somers permanent glass filter in the master frame, after all dirt has been removed.



Ted Peterson replaces a magnet in the high-low pressure control mounted on the top of a 25-hp. Westinghouse sealless compressor.



Van Vliet checks the system for "Freon" leaks, using a Prest-O-Lite leak detecting torch. All joints that may develop leaks later are tightened during the spring "start-up."

checked and calibrated, to produce the required conditions in the space served.

Owners are requested to keep all

grilles and ducts clean, for the sake of appearances, to minimize danger of fire, and to keep the system operating at its highest rated efficiency.

UNIFORMITY

You get it in WOLVERINE TUBING
—Buy From Your Jobber—

WOLVERINE TUBE CO. DETROIT

A SINGLE CONTROL Universal in Application

THE NEW **POLARTRON** FOR PRESSURE CONTROL UP TO 1 H.P.A.C.

Separate On and Off Knobs • Universal Range • Capillary Pressure Connections •
Fast Melts to Stick • Minimum Free Space • "Cycling Control" on Cut Out or Cut In • No Start Cycling
★ Peterson Equipped Compressors can be Converted to Produce Frost Free Constant Cold

MINNEAPOLIS-HONEYWELL REFRIGERATION Control

MINNEAPOLIS-HONEYWELL REGULATOR COMPANY 7407 FOURTH AVENUE SOUTH, MINNEAPOLIS, MINNESOTA
CHICAGO PLANT: 1000 N. KELLOGG AVENUE, CHICAGO, ILLINOIS
DETROIT PLANT: 1000 N. KELLOGG AVENUE, DETROIT, MICHIGAN
Note these Advantages

MINNEAPOLIS-HONEYWELL
REGULATOR COMPANY
REFRIGERATION Control

Distributor-Dealer Doings

Refrigerators Lead New Store Display

BRADDOCK, Pa.—Refrigerators and other major appliances have leading display positions in the ultra-modern store just opened here by Ohringer Home Furniture Co., Westinghouse dealer.

On the first floor beneath large vertically suspended fluorescent lights, refrigerators are placed along the left wall. To the right of the main aisle near the front is a display of washers and roasters, while along the right wall are two shelfed nooks for irons, toasters, and waffle bakers.

In the future the firm plans to make an unusual display by putting refrigerators and other appliances on a 15-foot revolving dais, located in the main, semi-circular display window on the street corner.

TVA Buys 250 Ranges & Refrigerators

WASHINGTON, D. C.—The Procurement Division of the Treasury Department has announced the purchase of 250 electric ranges (Electromaster) and 250 electric refrigerators (Kelvinator) for TVA to equip a housing project at Sheffield, Ala. The Treasury procurement office revealed that all refrigerators for the Government are now being purchased without trays.

Ranges Gain 300% In Sales Campaign

PITTSFIELD, Mass.—Sales increases of 300% in ranges and 25% in refrigerators over 1940 have been marked up thus far in the annual campaign sponsored by Pittsfield Electric Co., which will run until April 30.

At a recent dinner meeting, sales of 216 refrigerators and 76 ranges were reported by participating dealers and salesmen. J. F. Burt of the utility is directing the drive.

Sampson Installing 50 Electric Kitchens

CHICAGO—Fifty modern kitchens are now being installed by Sampson Electric Co. in the first 50 of a group of 300 new homes being built by Carrothers & Braun in the new Galewood Estates section of Chicago. Kitchens are of the newest design and include Norge refrigerators and ranges. This is one of the largest home developments now being constructed in the suburban area of Chicago.

Harris Moves Appliances To Second Floor

DALLAS, Tex.—Appliance department of A. Harris & Co., department store, has been located on the second floor of the central store building following completion of these quarters in an expansion program. The department is managed by Miss Zola Key. The former quarters of the department were one block from the central building.

McDavid Hit By \$2,000 Fire

BIRMINGHAM, Ala.—Radios, electric ranges, and washers were damaged to the extent of \$2,000 by a recent fire of undetermined origin on the second and third floors of R. P. McDavid & Co., appliance distributorship. The loss was covered by insurance, reports E. R. McDavid, proprietor.

Dealer Elected Mayor

MARION, S. C.—R. B. Gasque, Universal appliance dealer here, has been elected mayor of this community.

Essay Contest Seeks To Make Housewives Kitchen Minded

LA CROSSE, Wis.—The La Crosse Appliance Dealers' Association announced a \$125 cash and merchandise prize essay contest April 14 in connection with a six-week promotion campaign to make housewives kitchen minded.

Subject of the contest is "Why I Want a Modern Equipped Kitchen." It is open to persons of any age and will be restricted to 300 words. Entry blanks are available from participating dealers and the contest closes May 18 with the winners to be announced May 25.

Participating in the campaign, which includes newspaper advertising, are the following dealers: Clark-Bracken, Inc., Tausche's, Electric Supply Co., Maytag & Home Appliances, Inc., Denison Appliance Sales, Sears, Roebuck & Co., Gamble Stores, Northern States Power Co., Adam Kroner Co., Pfafflin Bros., Hodge Appliance Co., Swenson Hardware, Branson's, George C. Phillips Appliance Co., and Montgomery Ward.

Shirar-Young Enters Household Field With New Store

SACRAMENTO, Calif.—Shirar-Young Refrigeration Corp., heretofore a commercial refrigeration dealer only, has entered the household appliance field with a new retail store at 1616 "J" St. here handling refrigerators, electric ranges, water heaters, and washers. Frank P. Vivas will manage the appliance department.

The firm, which was established in 1930, is distributor for Weber commercial equipment, and has branches in Oakland and San Francisco. J. M. Johnson is manager at Sacramento.

Wilmington Appliances Dept. Moves

WILMINGTON, Del.—Household appliance division of the Wilmington Auto Sales Co., a consolidation of the firm's refrigeration, heating, and air conditioning sales and service branches, has moved into new quarters at Eighth and Orange Sts.

Frigidaire refrigerators and air conditioning equipment, Seeger commercial refrigeration units, and Delco oil burners are displayed. Remodeling has made nearly 3,500 feet of floor space available for display, and parts and service department space is provided in the rear.

Saxe Elected Head of Calif. Dealers

SAN FRANCISCO—Harry A. Saxe, Jr. of Sterling Furniture Co. here was elected state president of the Electric Appliance Society of Northern California at its annual meeting here recently.

Other officers chosen were: vice president, Lyman W. Ling, Jackson Furniture Co., Oakland; secretary, R. E. Fisher, Pacific Gas & Electric Co.; treasurer, S. W. Newman, Chas. Brown & Sons; and promotional director, O. E. Rush, Pacific Gas & Electric Co.

Raleigh Chapter of G-E Retail League Elects New Officers

RALEIGH, N. C.—At its first 1941 meeting the local chapter of the General Electric sponsored Retail Development League elected the following new officers:

R. W. Joyner, Quinn Furniture Co., Rocky Mount, president; B. P. Elliot, Welcome Service Station, Oxford, vice president; H. Blair Stevick, Johnson-Lambe Co., Raleigh, sergeant-at-arms; Miss Raymond Cosby, Johnson-Lambe Co., secretary.

Nema Head Opposes Bill 'Outlawing' Appliances In Defense Housing

WASHINGTON, D. C.—Opposition of the electric refrigeration and range industries to an amendment to the Lanham bill affecting the installation of electrically operated equipment in defense housing units was voiced by R. C. Cosgrove of Crosley Corp., chairman of the refrigeration sales committee of National Electrical Manufacturers Association, before the U. S. Senate committee which is conducting hearings on the bill.

The Lanham bill is an act to authorize the appropriation of an additional \$150,000,000 to be used in defense housing, and the amendment in question provides that no "movable equipment" (which would include refrigerators and ranges) be installed in the housing units as part of the original equipment unless the Federal Works Administrator deems it in the public interest.

Detailed reports on the bill were published in the April 2 and 9 issues of the NEWS.

G-E 3-Months Orders Pass 1/4-Billion Mark

SCHEENECTADY, N. Y.—Orders received by General Electric Co. during the first quarter of 1941 amounted to \$257,382,000, compared with \$97,490,000 during the same period of 1940, an increase of 164%. This was an all-time record amount of new business for a three months' period.

During the first quarter orders known to cover equipment for national defense amounted to approximately \$112,000,000, and exclusive of such business the orders for regular commercial products amounted to \$145,382,000, or 68% more than for the first quarter of 1940 on a comparable basis.

Kenyon Opens First Outlet In Texas

DALLAS, Tex.—Kenyon Auto Stores, an Oklahoma chain with headquarters in Oklahoma City, has opened its first retail outlet in Texas in a completely remodeled building at 2002 Commerce here. Another store is being established in Texarkana. Jake Justice is manager of the Dallas store, which will handle Leonard refrigerators, RCA radios, and other appliances.

Powell Named Dealer For Carbondale

DALLAS, Tex.—Roy B. Powell, operator of Frigid Refrigeration Engineer Co., in Oak Cliff, has been named a dealer for the Worthington-Carbondale line of equipment in capacities through 2 hp. The organization has taken new and larger quarters, including display and sales floor area of 25 by 90 feet, and complete shop facilities.

Bendix Laundry Shipments Up 101% In Quarter Over 1940

SOUTH BEND, Ind.—Increase of 101% in shipments of Bendix home laundry units from distributors to dealers during the first quarter of 1941 as compared to that of 1940 is reported by J. S. Sayre, vice president in charge of sales.

Sales in 1940 more than doubled those of 1939, Mr. Sayre added, and factory shipments to date this year are about 70% ahead of 1940.

Rocke Catalog on M & E Lines Has Spanish Sections

NEW YORK CITY—Rocke International Electric Corp., exclusive export agents for the Merchant & Evans line of refrigeration units, is featuring insertions in Spanish designed specifically for the South American trade in its 1941 catalog which features M & E products.

Retriever OF LOST PROFITS



KEROTEST

VALVES and FITTINGS

Lost profits often happen as a result of lost "repeat business"—and that's where Kerotest Valves and Fittings show their superiority.

Whether your problem is fitting-out new units or servicing, the result is the same . . . Kerotest Valves and Fittings create satisfaction from long service, utmost dependability and unit operation cost savings. These "superiorities" are repeat business builders you can't afford to overlook.

You'll enjoy doing business with your nearby Kerotest jobber, who can supply all your requirements with genuine Kerotest Valves and Fittings. Why not call him today?



JUST OFF THE PRESS!

The 1941 Edition of the most thoroughly used Handbook of Information in the air conditioning and refrigeration world . . . complete in every detail. Ask your local Kerotest Jobber—he'll be glad to supply you!

KEROTEST
MANUFACTURING COMPANY
PITTSBURGH, PENNSYLVANIA

Dealer Moves Into Smaller Store To Increase Sales & Profits

SALT LAKE CITY—Success in reverse! Most appliance dealerships are considered on the way up when increase of business forces them to increase their store space, but C. Lamont Felt here recently moved into a smaller store to improve his profits.

For years Mr. Felt paid \$190 a month for 25 x 90 foot store. Because employees devoted so much time to janitorial work to keep the top-heavy stock in order, they had less time to sell. The large store was a temptation to add chinaware, statuary, etc. to increase sales. While they did add a bit to a sale, their presence often turned the customer's attention from the more profitable appliance items. Furthermore, they complicated inventory.

When the firm decided to install fluorescent lighting, it was discovered that the large store with its high ceilings, was not adaptable to this lighting without expensive and radical remodeling. So the firm moved across the street to a 12 x 69 foot store, and increased its personnel despite the smaller space.

In the new store all items not directly related to the electrical business have been eliminated. Employees have more selling time because of that, and because smaller display windows mean less time required for arranging and trimming windows.

Private desk has been installed on the balcony where Mr. Felt can talk with customers, particularly on lighting problems. This office provides convenient demonstration room for fluorescent lights, which Mr. Felt plans to push.

One room, 15 x 16 feet, with wash-

able leatherette antique finished walls, and comfortable lounge chairs, displays crystal fixtures only. These items, among the most costly in the store, require the concentrated selling effort that this new privacy affords.

General offices are located on the main floor, as is the workshop.

Sales Gain 50% After Electric Kitchen Is Installed

HOT SPRINGS, Ark.—After testing for five years the substitution of an electrical home appliance department for a general housewares department and finding it successful, Vaughan Hardware Co. last year added an all-electric kitchen. The department's volume rose 50% as a result, with six complete kitchens being sold.

In addition to the kitchen, the complete line of General Electric appliances is grouped in separate appliance centers—a refrigerator center, range center, etc.—to conserve space and spotlight the appliances.

Two special selling methods are used by the firm which help considerably in building sales. Employees who after store hours sell appliances or dig up prospects that eventually buy receive a bonus of 5%, even if the names handed in are sold from the floor.

Every morning a young lady telephones 10 to 20 selected persons, explaining that she is making an electrical appliance survey, and asks what appliances are in use in the home. Because this is done all year, a number of prospects are discovered for all appliances.

Electromotive Gets Tourist Jobs

DALLAS, Tex.—Contracts for furnishing of equipment for one of the largest tourist cabin camps in the Dallas area have been awarded Electromotive Corp. of Dallas. Equipment to be furnished will include room coolers for each of the cabins, and water cooling equipment for each.

Condensing Units for every commercial refrigeration and air conditioning requirement . . . Also packaged air conditioners.



Established 1854

Curtis Refrigerating Machine Co.
Division of Curtis Manufacturing Co.
1912 Kienlen Ave., St. Louis, Mo.

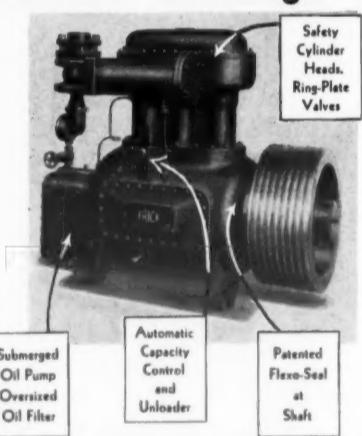
Exclusive Advantages Announced for the New

Eclipse Refrigerating Machines

Only in the Eclipse line can you get all the exclusive advantages shown, plus such features as higher operating speeds (up to 900 r.p.m.), force-feed lubrication throughout, direct-connected motor drive when desired, two machines operating together (using the Frick oil-equalizing system), pistons with 5 rings, etc. Nearly 60 years' refrigerating experience built into them.

FRICK CO., Waynesboro, Penna.

Some good distributor territories now open. Write for full details.



SQUARED IN REFRIGERATION

Send for your Copy of this Controls Catalog

Includes Pressure and Temperature Controls—High Pressure Cutouts—Solenoid Valves and Related Devices. This comprehensive reference catalog will be sent upon request.

DO IT ALL WITH SQUARE D—SWITCH • PROTECT • REGULATE

Jobber
Inquiries
Invited

SQUARE D COMPANY
REGULATOR DIVISION
DETROIT • MICHIGAN



Dept. Store Appliance Branch Improves Sales, Goodwill

DALLAS, Tex.—Considerable boost in sales, profitable handling of trade-ins, improved servicing, and all-around development of customer goodwill have resulted from the branch appliance store operated for the past three years by W. A. Green Co., department store, believes Frank B. LaPrelle, department manager.

Many new customers have been developed by the branch store. These customers, who first buy appliances at the branch, are attracted to the main store where they naturally buy in other departments.

The branch also is headquarters for servicing appliances, and a shop is maintained there. Although the service men operate out of the branch, they receive their instructions from the main store. All customer calls coming into the branch are relayed to the main store to avoid duplications if customers should call both branch and main store.

Because the branch remains open until 9 p.m., which the main store couldn't do, it has been productive of many sales. Salesmen can take husband and wife to the branch after "hours" to close a deal.

Emergency deliveries, particularly on weekends when a customer at the main store buys an appliance on Saturday and insists on having it in her home for Sunday, have been made possible by the branch operation. Even though the main store's warehouses close at noon Saturday, deliveries can usually be made from the stock at the branch.

Selling of used equipment is made possible through the branch, Mr. LaPrelle reports. Limited space at the main store prevents adequate display of these trade-ins, but the branch devotes a large section of space to these items.

Distributor Takes His Line To Dealers

HARTFORD, Conn.—When several good prospects were unable to attend the three open house showings it sponsored, Connecticut Appliance Distributors' Corp., Crosley distributor here, fitted up a large trailer as a "Showmobile" and took the complete line to dealers in all parts of the state.

The wholesale salesman, usually assisted by Richard Heimovitch, vice president of the distributorship, takes the Showmobile into a town and parks it in front of a prospective dealer's store. Electrical connection is established for sound equipment in the trailer, and the dealer invited to review the line. All calls are made on a definite schedule prepared in advance.

At one end of the interior of the trailer, a sound film is shown, the first 15 or 20 minutes devoted to refrigerators and the balance to other products. This dealer-getting method is comparatively slow, for only about four presentations can be made a day. But the number of dealers who react favorably and sign up is said to be high.

Gas Men Attend Sales School on Cooling

HOUSTON, Tex.—A sales training school devoted to gas air conditioning was recently held by United Gas Corp. here. The opening session was conducted by John Gilbreath of Servel, who discussed the history of gas-fired cooling equipment, the approach to the market, and information about the Servel product.

W. L. Jones Becomes Dealer

LAKE CITY, S. C.—W. L. Jones has set himself up as Westinghouse appliance dealer here.

Sam's Selling Slants



V. E. ("Sam") Vining, merchandising manager for Proctor Electric Co., is the industry's most colorful salesman. This is the twenty-seventh of a series of Sam's famous "Selling Slants" messages to salesmen. An earlier series was published in the News in 1937.

SILVER BARS

In the army—

An officer and a gentleman—by act of a Democratic Congress—I buddied with Lieutenant Rosenblume of Grand Rapids, Michigan.

One day I walked into a Y.M.C.A. hut and found "Rosie" running his finger through his hair and wiping the sweat from his brow, struggling to fill out a form which, when completed, would promote him from Lieutenant to Captain.

I yelled: "Congratulations, Rosie!"

He—grunted.

I said: "What's wrong? Don't you want to be a nice, shiny, new Captain?"

"Sure," says he,

"But what I want to know is how the hell they expect a man with the name of

Eli Abraham Rosenblume to—

Sign his Christian name!"

"Rosie" was kidding. He took his new silver bars—with gusto.

I know men, however, and so do you, who are so blinded by a detail or two on the particular gadget they are selling or a minor policy of the house with which they are working that they are licked before they start.

Use of Refrigerator Door As Screen for Movies Booms Floor Sales

ALBUQUERQUE, N. M.—Surprising number of quick floor sales resulted when Sales Manager F. W. McPhee of Vic Sanders Electric Co. decided to use the door of a refrigerator as a screen for movies of the same refrigerator.

At the rear of the store is a small closing and demonstration room where hard-to-close prospects may be taken for private conversation. The firm formerly used a conventional movie screen, but with the new setup, when the lights are turned on after a showing of the movie, the prospect finds himself looking at the very box pictured in the film.

WIZARD AIRE
CONDITIONER

THE DEPENDABLE

HERMETIC Year-Around Window Conditioner

Distributors - Write
for Proposition

CERTIFIED PRODUCTS CO.
Toledo, Ohio



More than 20 years of high reputation...in every kind of refrigeration service...has established the name "Lipman" as a BUY word that breaks down sales resistance. Make this reputation your sales asset...for greater profit and better customer satisfaction.



GENERAL REFRIGERATION DIVISION
Yates American Machine Co.
Dept. AC-1 Beloit, Wisconsin

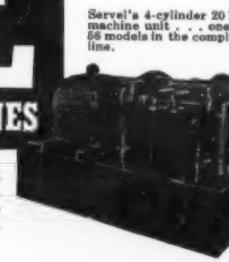
**U. S.
GOVERNMENT
Specification**

Filtrine

Cafeteria Coolers
Filtrine Mfg. Co., Brooklyn

SERVEL COMMERCIAL REFRIGERATING MACHINES

Whether your requirements are large or small, standard or special, Servel engineers can help you solve your most vexing problems of commercial refrigeration or air conditioning. Write today to Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Ind.



How To Prove 'Profits In Air Conditioning'

Survey Form Provides A Story In Figures

An Example of How It Would be Used For A Restaurant

By Henry Knowlton

DETROIT—Because the installation of air conditioning equipment will normally show a profit for the owner of most small business establishments, the economic approach to the subject is of primary importance in making a sale. Most manufacturers have recognized this fact, and have provided salesmen with some sort of "economic survey form," or "business estimate sheet," to be used in making an analysis of a prospect's business.

The form illustrated on this page is the one used by General Electric, and is fairly representative of a number of such forms that are now in use. The hypothetical case typed on the form is a composite of several installations, and operating costs are based on estimates from the local utility. Business gain estimates were checked with an actual 5-ton restaurant installation in Detroit, although this restaurant does not happen to have General Electric equipment.

WHAT FIGURES TO USE

For purposes of this illustration of the profits in air conditioning all figures have been adjusted slightly; operating costs revised upward, and profit increases downward from the estimates given, by the people interviewed.

Here we have the case of John Doe, who owns a restaurant located in the mid-town section of Detroit, seating 90 people. While some engineers will insist that more equipment should have been installed, a 5-ton cooling unit of standard make has been giving very satisfactory results for several seasons. The estimated cost of this unit is given at \$1,300, but was actually slightly higher because of a certain amount of duct-work.

Engineers for the Detroit Edison Co. estimate that a unit of this type

will run 50% of the time that the establishment is open for business. This will be from 400 to 1,000 hours per season, in Detroit, depending on the type of business. In the case of a restaurant, utility engineers consider that 800 hours per season would be a fairly high estimate, considering that there are usually a number of fairly cool days throughout any normal summer.

It is generally agreed that the cost of a packaged air conditioning system may be amortized, safely, over a 10-year period. This cost is shown under "depreciation" at 10% of the system cost of \$1,300, or \$130. Interest on the investment at 5% is \$65 per year. If the money to purchase the equipment is taken out of the business capital available, this might be set at a considerably higher figure, but as most units of this type are purchased on borrowed money, 5% interest is a fair figure. Maintenance is usually estimated at about 2% a year—in this case \$26. The total cost of owning the system, exclusive of operating costs, adds up to \$221 per year.

POWER, WATER COSTS

Operating cost is based on 800 hours which amounts to about \$90 for the compressor and \$9 for the fan, per season. Water costs in the Detroit area, based on 75 cents per thousand cubic feet, or 10 cents per thousand gallons, will be about \$36 per season. General practice is to balance water and electric costs; if the electric cost is high, use more

water, and if the water cost is high, cut down the flow and use more electricity. In the Detroit area water costs about one-third of the electric cost in the operation of equipment of this type.

Thus, the total cost of owning and operating the 5-ton packaged unit is found to be \$356 per year. A good "trick" used by air conditioning salesmen, which is not shown in the G-E economic survey, is to break this cost down into cost per person served, in the case of restaurants, as restaurant operators think in terms of average meal checks paid by customers.

PROVING THE PROFIT

It is generally conceded that a restaurant must have an average daily revenue of \$75 to stay open, unless it is operated by a man and his family. In the case of commercial establishments, a down-town restaurant seating 90 people may take in from \$300 to \$500 per day, but the restaurant selected in this case is more in line with the average, and shows a revenue of \$150 per day.

Total income for a four-month air conditioning season is \$18,000. The owner asserted that his business increased from "35% to 40%," but we have selected a figure which comes closer to the national average—30% increase, which amounts to \$5,400.

Sometimes it is necessary to increase the personnel of a business establishment due to increased business. In this case the cost of an

GENERAL ELECTRIC AIR CONDITIONING

ECONOMIC SURVEY*

Name John Doe Location Detroit
Type of Business Restaurant
Size 90 seats (sq. ft. area, number of seats, any special features)

Estimated Tonnage for Cooling 5 Winter Use Planned None
Estimated Installed Cost \$1,300
Estimated annual hours use, Condensing Unit: 800 Fans: 800

APPROXIMATE ANNUAL OWNING AND OPERATING COST

OWNING COST

Depreciation @ ... 10% = \$... 130.00...
Interest @ ... 5% = \$... 65.00...
Maintenance @ ... 2% = \$... 26.00...
Total Owning Cost = \$... 221.00...

DIRECT OPERATING COST

Condensing Unit Power: ... 800 hrs. x ... 5 kw. x ... 2 1/4 cents = \$... 90.00...
Fan Power: ... 800 hrs. x ... 1/2 kw. x ... 2 1/4 cents = \$... 9.00...
Water: ... 800 hrs. x ... 450 gal./hr. x ... 10 cents = \$... 36.00...
Total Direct Operating Cost = \$... 135.00...
APPROXIMATE ANNUAL OWNING AND OPERATING COST \$... 356.00...

INCREASED REVENUE ANTICIPATED FROM AIR CONDITIONING

Representative Data on Income & Costs, Based on Similar Establishments
Average Daily Revenue ... \$150.00... Total for Air Cond. Season ... \$18,000...
Per cent gross gain expected from Air Conditioning ... 30%...
Expected gain in gross revenue (for season) ... 30% x \$18,000. = \$... 5,400.00...
Increased operation costs expected to take ... None ... % of increase in gross revenue
Expected increase in net profit: ... 20% x \$... 5,400.00... = \$... 1,080.00...
Deduct annual Owning and Operating Cost of Air Conditioning = \$... 356.00...
NET PROFIT ANTICIPATED FROM AIR CONDITIONING = \$... 724.00...

*The results obtained by proper use of this chart should be representative, but are not guaranteed.

extra waitress, or cook, would have to be taken into consideration. "John Doe" reported that it was not necessary to increase his staff, so the entry "None" is made.

The 20% increase in net profit, based on the increased business, is very conservative, because as business volume gains overhead does not rise in the same proportion. The survey shows, however, that the owner will make \$1,080 per year on his air conditioning. After deducting owning and operating costs of \$356 as given above, the "net profit anticipated from air conditioning" amounts to \$724.

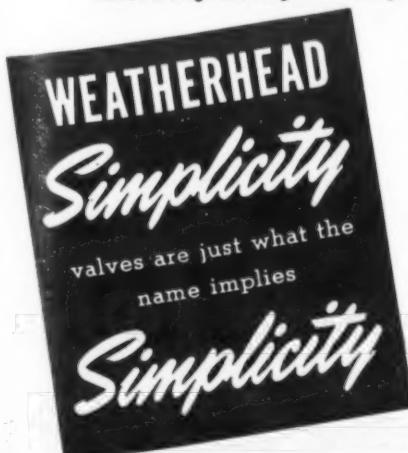
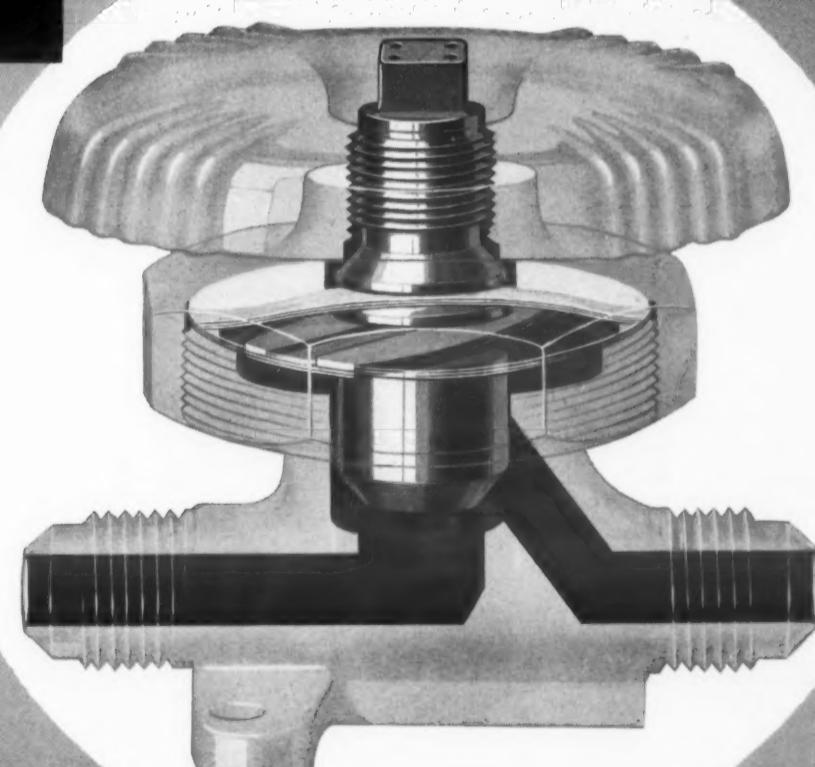
If the net profit on the equipment is \$724 per year, and the system cost \$1,300 it is obvious that the investment will pay for itself in two years. After that time, John Doe will show a handsome profit of 50% a year on his investment, plus the goodwill gained from having an air conditioning system for the comfort of customers.

The above example is simply a method of showing that air conditioning is a sound business investment, and may be merchandised on that basis. The economic approach to an air conditioning sale can be used with any type of business.

Easy to Install

LOWEST OVERALL HEIGHT of any Packless Valve

WEATHERHEAD PACKLESS VALVES



THE WEATHERHEAD COMPANY, CLEVELAND, OHIO
Refrigeration Valves, Fittings and Accessories

AIR CONDITIONING & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

F. M. COCKRELL, Founder

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America Can Hold Its Own

RECENT successes of the Axis forces in the Balkans have filled many business men with gloom. "What if Hitler wins?" they cry. "What if, despite all the aid we can send to Britain, he gobbles up all of Europe and most of Africa this year? What will happen to our economy? Won't our standard of living be doomed?"

In the first place, none of our military authorities has been surprised by German successes in the Balkans. There is no question but what Hitler has the most powerful land army anyone has ever seen. But sea power is a different matter. The British Empire is not doomed just because a small detachment of its land forces could not hold the pass at Thermopylae.

This war is likely to go on a long time, and the longer it lasts, the greater the odds against Hitler.

WHAT WILL HAPPEN TO FOREIGN TRADE?

However, for the sake of argument, let us examine the possibility that England is forced to sue for peace this summer, and that all Europe becomes part of Hitler's economic machine? What will happen to our foreign trade then?

Undoubtedly it will be different. We may have to indulge in some bartering ourselves. We may have to dig up some of the gold we've buried at Fort Knox, and pass it around to some nations with whom we'd like to establish a sound basis for trading.

The game may be different. It may be played with different rules. But in any game of foreign trade, America holds the trump cards. We have the greatest internal trade in the world. We have the greatest industrial system in the world. We have the finest collection of raw materials in the world. We are the richest nation in the world. And whereas in diplomacy we may lose our shirts, nobody has yet bested the Yankee trader over any period of time.

"But," say the pessimists, "Hitler will have slave labor. We can't compete and pay our high wages."

Nonsense. We've been competing with slave labor (Japan's) for years.

Wherever quality is a factor, our products push Japan's right off the market, almost anywhere in the world. And not even Hitler will be able to get labor as cheaply as Japan does.

The Japanese have been unable to build and sell refrigerators in competition with American makes even in the Far East, where their prices are less than one-third that charged for American makes. The same thing is true for motor cars. They go great on toys, and cheap textiles, but aren't so hot on *engineered* equipment.

"Yes," say the pessimists, "but the Germans are fine engineers. And when you give them all that slave labor . . ."

Answer: Even with slave labor (the engineers aren't paid starvation wages, however, and the conquered "slaves" aren't engineers or even skilled mechanics) Hitler has two strikes on him. He has no great home market.

That's our ace-in-the-hole. Our home market is so vast, our demands are so great, that we can get up tremendous production schedules just to supply America. Foreign markets, then, can be supplied with our products at prices already made extremely low because of the mass production required to take care of the home market.

This story is a familiar one to any export manager in the industry. All of them have seen how American specialty products beat out the Japanese and the German in spite of price disadvantages, how they beat out the British in British Empire territory despite the home ties and the anti-American trade prejudice which existed before 1940.

U. S. PRODUCTS LEAD IN S. A.

In 1938, when Germany, Great Britain, and Japan were all cutting one another's throats to get the South American market, when they were selling at a loss in order to build up their foreign exchange resources, America's sales to the 20 Latin American republics exceeded the combined sales of Germany, Britain, and Japan.

How come? Answer: We simply know how to make things better. Our refrigerators not only work better, but *look better*. The same holds true for drugs, toilet articles, breakfast foods, electric fans, sewing machines, and a myriad of other articles which hold commanding positions in the export markets.

But why can't Hitler duplicate our successes, when he has all of Europe, with its 165,000,000 inhabitants, for a home market? We'll let Carl Crow, famous export advertising man and author, answer that one. Writing in the April 15 "Forbes" magazine, he replies:

'THE NAZIS CAN'T DO IT'

"Not for a hundred years. That is about the time it would take, I estimate, to develop a good, brisk market for tooth paste among the Rumanian peasants. To state it more ponderously, the purchasing power isn't there and the educated demand isn't there. And if the Nazi economy envisages raising the purchasing power of the Bulgar to the point where every farmer can buy a car and a tractor, the Nazis will have to raise labor costs to match ours.

"If they do that, they cannot undersell us with the same quality of goods. They can't have it both ways."

They'll Do It Every Time

By Jimmie Hatlo



Observer Crow, who has just returned from an extensive tour of South America, also points out that the quality of German goods, never too high, deteriorated sharply in the years just before the war, when the Nazis were forcing their industrialists to turn out everything at double speed in order to acquire more foreign exchange.

"All up and down the continent," writes Mr. Crow, "I heard stories of recently installed German machines proving defective, of electric fans wearing out in a few months. These were not cheap, unbranded goods, but the produce of the famous Siemens-Schuckert factory. It will be years before this fine old German concern can regain its reputation for dependable products.

"The outstanding example of this Nazi-controlled manufacturing is found in Chile where a large fleet of German planes, obtained by barter, is still on the ground. They look all right, but no one wants to fly them."

MACHINES UNABLE TO STAND UP

The writer might add that at the World Congress of Refrigeration, held in Holland 'way back in 1936, he heard many tales from delegates of the failure of German machines to stand up. It will take the Nazis a long time to build up goodwill for German products again. And, to state it mildly, their methods of building goodwill seem a trifle on the heavy side.

Reverses in the Balkans, then, are no great cause for alarm. Britain is still very much in the running. Even if she loses, the invasion of America presents the most difficult military problem of all time—so difficult that only the politicians admit its possibility. And as for markets after the War, America can hold its own against all comers.

QUOTED

Diversification

THE principle of crop diversification which the Government very properly has been trying for years to hammer into the consciousness of farmers in the Middle West is now being adapted in industry. Exigencies of defense production have demonstrated that the one-product town, like the one-crop farm, has inherent economic weaknesses which seem to have a habit of manifesting themselves at exactly the wrong time.

Paterson, N. J., for example, has for years

been eating regularly when its main industry, silk, was flourishing. But let the silk market slump and the situation is not so good. In Akron, Ohio, conditions have been good or bad in proportion to conditions in the rubber industry.

When the Wright Aeronautical Corp. began producing airships in Paterson, the town lost none of its prestige as a silk center. But Wright's tremendous payrolls added immeasurably to Paterson's general prosperity. When shortly Akron begins producing wings, fuselages, and tail surfaces for the Glenn L. Martin long-range bombers, the rubber industry will not lose face; Akron will still be the world's rubber capital.

Thus does industry take a lesson from the farm.—Printers' Ink for April 18, 1941.

LETTERS

YOU'RE RIGHT. THE NEWS RAN IT

Albert Tucker Co., W. Va.

Editor:

I have seen an article describing the use of an old compressor unit with some home made attachments for the testing the operation of temperature control. This outfit freezes a liquid in a small dish where the temperature bulb is inserted and the unit operated until the control to be tested cuts off and the temperature noted.

This article gave complete operating and construction data and I would like to have a copy of it if you can find it.

I am right sure I saw it in the REFRIGERATION NEWS as I only take one other magazine and I could not locate it in them although I will write them if you do not know anything about this, but I am of the idea that I saw it in the NEWS.

Please find enclosed \$1 in cash for your Locker Storage Manual.

FRED HARTMAN

Answer: Published on page 11 of the Dec. 4, 1940 issue of the NEWS is the first of a series of articles on "Equipment for a Rebuilding Plant." This article describes a control tester to which I believe you referred in your letter.

'I LIKE THE SERVICE SECTION'

1916 Frankfort
San Diego, Calif.

Sirs:

Well here it finally is. The check I mean. I guess if I had of procrastinated much longer you would have blacked me out, and rightly so, and then you could have bet your last dollar that you would have got the four bucks in an 'ell of a hurry.'

It's a fine paper and well published. I particularly like the service section, especially articles by A. Black and Dean C. Seitz. Keep them coming.

H. E. FRIEDRICH

'APRIL 9 ISSUE VERY INTERESTING'

Carrier Corp., International Div.
Syracuse, N. Y.

Sirs:

I found your April 9 issue of the AIR CONDITIONING & REFRIGERATION NEWS very interesting because of its tabulation and comparison of self-contained air conditioners.

HARRY S. TRAYNOR

Proper Pro-Rating of 'Indirect' Expenses Important As Key To Dealer's 'Weak Sister' Departments

By Arthur Roberts

Jones and Bender, dealers in air conditioning and refrigeration, made money and lost money this past year. Sounds paradoxical, nevertheless, it is true. An analysis of their records showed that they made \$2,400 net profit on the business as a whole but lost \$344.40 in the repair sales department. The other departments were carrying this "weak sister."

When we disclosed our findings to Phil Bender, he exclaimed, "We keep departmental records of sales, cost of sales, and margins. We charge direct expense, such as rent, insurance, depreciation, and repairs to the departments involved, and the books show that every department is holding its own. Indirect expenses are not pro-rated, but charged to an account called 'General business administration.'

"We watch all expenses closely. Last year indirect expenses were \$6,120 or 9% of \$68,000 sales, which is a safe ratio, and since we made \$2,400 after deducting these expenses plus salaries for Jones and myself, it indicates that the business is being managed efficiently. Please explain how you figure we lost \$344.40 in the repair sales department." As we explained it to Bender, we now explain it to you.

DIRECT VS. INDIRECT EXPENSE

Overhead expenses fall into two groups for pro-rating: direct and indirect: the former clearly applicable to one or more departments, the latter, such as office expense, owner's salary, and delivery expense, non-applicable to any department but chargeable to the business as a whole. Nevertheless, these expenses must be pro-rated in some way to the various departments to arrive at true departmental profit. Because the indirect expenses are pro-rated indirectly, they are given that name. All expenses ultimately must be charged to income-producing departments, because they are the only sources that can recover these charges.

Many air conditioning and refrigeration dealers, like Jones and Bender, handle direct expense properly but consider indirect expense as one total instead of pro-rating it to income-producing departments. Hence, they never ascertain the relative strength of their departments and manage them "in the blind," a condition doubly dangerous to success because these merchants assume that departmentalization assures them profits.

From a study of this subject, we find that the recording of direct expense gives little trouble, but the indirect expenses often confuse. Much of this confusion, as with depreciation, is engendered by the many involved discussions, verbal and printed, on pro-rating, allocating, distributing, or apportioning overhead expense.

Dealers and others employing labor, are advised to distribute overhead according to labor hours, machine hours, prime cost, unit of sale, or output, upon an experience percentage basis, according to payroll, upon materials used, to pro-rate selling expenses on a basis different

from that used to pro-rate other overhead expenses, etc.

No wonder that many air conditioning and refrigeration dealers assume that the pro-rating of indirect overhead expense is intricate and costly, hence, let it slide to do only a half-baked job as Bender and Jones did. Accountants differ on the methods of allocating overhead expense, there are different schools of thought on the subject, reliable and accurate overhead distribution is a matter of dispute and doubt.

However, by means of many field tests and years of experience on the accounts of air conditioning and refrigeration dealers, we have established that the following method is simple, accurate, and most applicable to this field.

Jones and Bender's accounts make an excellent case study, because they are indicative of so many other dealer accounts in this field, which pro-rate overhead expense incorrectly. Jones and Bender's condensed profit and loss statement for 1940 was as follows, eliminating cents and using round figures for clarity:

Table 1—Dealer's Original Profit-and-Loss Statement

Sales	\$68,000	100.0%
Cost of sales	45,200	66.5
Margin of profit on sales	\$22,800	33.5%
Direct overhead expense	\$14,280	
Indirect overhead expense	6,120	
Total overhead expense	\$20,400	30.0
Net profit on sales	\$ 2,400	3.5%

The direct expenses were properly distributed to the six departments, the indirect expenses were combined under one account called, "General business administration." This routine is good accounting as far as it goes, but after the indirect expenses had been totaled in one account, they should have been allocated to the various departments on the same percentage as the direct expense. This procedure confuses many because it seems involved, but it can be reduced to simple fundamentals. Here's how:

Jones and Bender's direct expenses were departmentalized on their books as follows:

Table 2—Direct Expense

Departments	Direct Expense	%
Air conditioning—		
home sales	\$ 2,270.80	16%
Air conditioning—		
commercial	1,531.60	11%
Refrigeration—		
home sales	2,352.00	16%
Refrigeration—		
commercial	5,171.60	36%
Small electrical		
appliances	1,274.00	9%
Repair sales	1,680.00	12%
Total direct expense	\$14,280.00	100%

The percentages represent each department's proportion of direct expense to total. To arrive at the proper allocation of indirect expense,

we pro-rate this total with the same percentage to the same departments, basing the computation on \$6,120 instead of \$14,280, using the nearest round figures, which is satisfactory for this purpose.

Table 3—Indirect Expense

Departments	Indirect	%
Air conditioning—		
home sales	\$ 979.20	16%
Air conditioning—		
commercial	673.20	11%
Refrigeration—		
home sales	979.20	16%
Refrigeration—		
commercial	2,203.20	36%
Small electrical		
appliances	550.80	9%
Repair sales	734.40	12%
Total indirect expenses	\$6,120.00	100%

Now, for the final recap of Jones and Bender's departmental accounts with the indirect expenses (\$6,120) properly pro-rated instead of being deducted in one lump sum. This is shown in table 4.

dead pages after the accounts are ruled off and a new year of recording begins. Bookkeeping has a much broader function. The successful dealer uses his books as guides and advisors to future operation, but they cannot supply this service unless all expenses are pro-rated so that true departmental profits are shown.

NO INVOLVED BOOKKEEPING

The departmental recording of sales, cost of sales, and direct expense is not enough to determine departmental efficiency, because indirect expenses are not allocated, and you are never sure of departmental profits until the last expense dollar is properly pro-rated.

Pro-rating the overhead does not involve the bookkeeping procedure unduly. Those who departmentalize their direct expenses have only to make a journal entry transferring the total of indirect expenses to the various departments on a percentage basis as shown here. Those who do not departmentalize need only add departmental columns in the journals and departmental pages in the ledger. Little additional book work is involved for the many advantages of departmentalization and complete allocation of overhead expense.

It won't be hard to sell goods and service during the next few years, but it will be hard to make a profit on sales unless the dealer is tops in managerial efficiency. And you can't be tops in managerial efficiency unless you keep records that are tops in comprehensibility. You must know exactly where you stand in each department, so that you can take intelligent action for betterment and forge ahead in the clear.

Many air conditioning and refrigeration dealers are weak on costing, and today it is more important than

ever before that they know just what it costs them to run every department of the business. To this end, the accurate and complete proration of overhead expense is of prime importance.

ERRORS IN OVERHEAD

Our experience indicates that direct departmental costing, the computation of wages and materials used on installations, is usually done accurately because it is a matter of merely figuring quantities and labor hours. The big errors creep in when the dealer starts computing overhead expense. Many assume that pro-rating is a complex operation but, as this monograph shows, it is easy to handle.

We commend the pro-rating of overhead expense as outlined here because it is a simple method and in keeping with modern demands for greater efficiency in business. Incidentally, repair sales are often unprofitable over the year because overhead is not properly pro-rated. There is no reason why repair sales should be a drag on other departmental profits, and the solution of this problem usually lies in the proper pro-rating of overhead.



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Silent, vibrationless, dependable, long-lasting. Powerful grip prevents slippage. A nearby distributor carries a complete stock for appliances and machines.

THE DAYTON RUBBER MFG. CO., DAYTON, OHIO

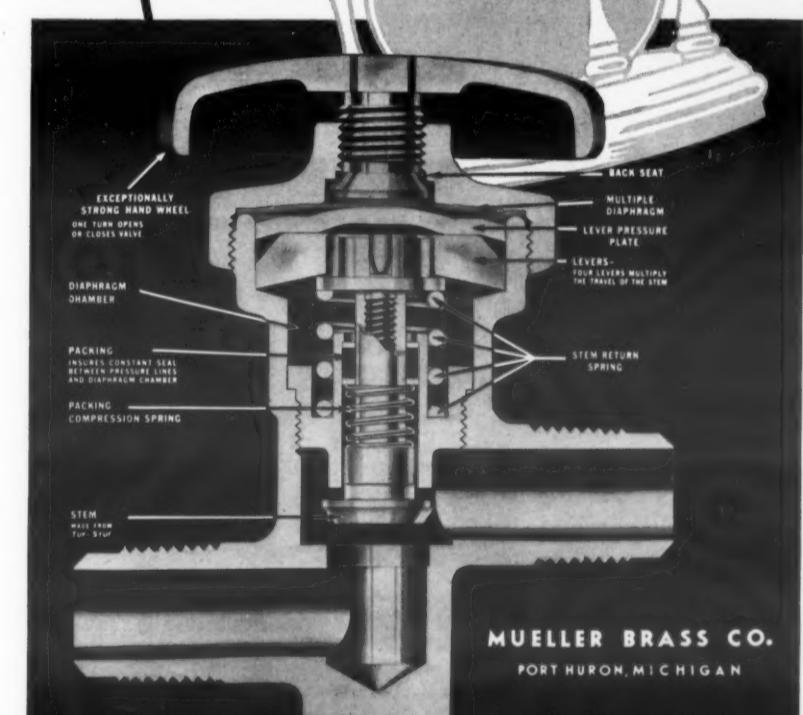
World's Largest Manufacturer of V-Belts

Increased DIAPHRAGM LIFE PROLONGS THE SERVICE LIFE OF THE VALVE

Because of the small amount of movement, the multiple diaphragm in our Triple Seal Valve is never deflected past its normal center, thus immeasurably prolonging both its life and the life of the valve in service.

This valve has positive sealing at three essential points—a back seat with valve in open position—the multiple diaphragms—and the superior packing assuring constant seal between pressure lines and diaphragm chambers.

One turn only completely opens or closes the valve.



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Table 4—Analysis of Accounts with Indirect Expenses Properly Pro-Rated

Departments	Sales	Cost of Sales	Gross Margin	Direct Expense	Indirect Expense	Net Profit	%
Air conditioning—home sales.....	\$18,400	\$14,720	\$ 3,680	\$ 2,270.80	\$ 979.20	\$ 430.00	2.3%
Air conditioning—commercial	7,200	4,680	2,520	1,531.60	673.20	315.20	4.4%
Refrigeration—home sales	8,400	4,400	4,000	2,352.00	979.20	669.90	8.0%
Refrigeration—commercial	24,600	15,990	8,610	5,171.60	2,203.20	1,235.20	5.0%
Small electrical appliances.....	4,600	2,880	1,920	1,274.00	550.80	94.10	2.0%
Repair sales	4,800	2,530	2,070	1,680.00	734.40	344.40*	7.5%*
Totals	\$68,000	\$45,200	\$22,800	\$14,280.00	\$6,120.00	\$2,400.00	...

*Loss.

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Popularity of Ice Revues Expands Growing Market for Rinks



Mary Jane Yeo (left) and Edwina Blades (opposite right) are two of the reasons for the phenomenal success of the skating revue "It Happens on Ice" which is slated to continue through the summer at the Center Theater in Radio City. This view of a stage set (above) shows how the stage apron extends beyond the proscenium arch and curves out at the front, presenting unusual problems in the design of brine piping used to form the ice surface.

New Warehouse Opened

BOSTON — Cutler-Hammer, Inc. has established a warehouse at 131 Clarendon St. here stocked with the company's complete line. The Boston sales office of the firm has been moved to new and larger quarters adjoining the warehouse. W. E. Addicks is district manager.

1940 Sales Statistics Point To 1941 Market

Household and Commercial Refrigeration

Can you use detailed statistics on 1940 household and commercial refrigeration sales? They are now available in a 9 x 11 looseleaf book of 30 pages, reprinted from AIR CONDITIONING & REFRIGERATION NEWS. This handy book—invaluable for your files—contains the following:

1920-1940 HOUSEHOLD REFRIGERATOR SALES

Number, average retail price, and total retail value of household refrigerator sales by all U. S. manufacturers each year, 1920-1940.

Number of world sales, exports, U. S. sales, retirements, distributor and dealer stocks, and total household refrigerators in use in U. S. each year, 1933-1940.

MONTHLY HOUSEHOLD REFRIGERATOR SALES

Number of household refrigerator lacquer (eight different sizes) and porcelain (seven different sizes) cabinets sold in U. S., in Canada, and in other foreign markets and the totals for each month and for the year 1940, by manufacturers in the National Electrical Manufacturers Association (Nema), whose sales comprise more than 95% of the total.

Number of household refrigerators sold (Nema) in each state each month and for the year 1940.

1939-1940 COMMERCIAL REFRIGERATION SALES

Number and dollar value of world (Nema) and U. S. Sales of commercial refrigeration units, 1939 and 1940.

Number and dollar value of world, foreign, and U. S. sales of commercial condensing units, 1939 and 1940.

Number and dollar value of world (Nema) sales of ice cream cabinets, beverage coolers, pressure and bottle water coolers, 1939 and 1940.

MONTHLY COMMERCIAL REFRIGERATION SALES

Number and dollar value of domestic, Canadian, other foreign, and total world sales (Nema) of bottle water coolers, pressure water coolers, low side water coolers, complete ice cream cabinets, ice cream holding cabinets, bottle beverage coolers, low side beverage coolers, complete milk coolers, milk cooling cabinets, commercial evaporators, condensing units of 17 different sizes from less than $\frac{1}{2}$ to more than 50 hp., shell and coil or shell and tube and evaporative condensers sold separately each month and for the year 1940.

Price of this book with a durable binder is \$2.00. The loose sheets without the cover are available for \$1.50 per set. Please use the coupon.

Business News Publishing Co.
5229 Cass Ave., Detroit, Mich. Date.....

Please send 1940 Sales Statistics Book for \$2.00.
 Send 1940 Sales Statistics sheets without binder for \$1.50.

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Name

Company

Address

Ice Surface Built on Stage of New York Theater Requires New Method of Brine Piping and Isolated Compressor Base

NEW YORK CITY—"It Happens on Ice," the skating revue which still draws capacity crowds to the Center theater in Radio City, is performed on a rink which covers the

immense stage and stage apron. The shape of this apron, both curved and angular, presented brine piping problems which some of the "experts" said could not be solved satisfactorily without having soft spots in the ice.

The problem was solved by Charles Bach, Vilter Mfg. Co. chief engineer, whose piping layout included rectangular box headers welded from channels and plates—and unusual construction in ice rink work. The individual pipes between the headers contain expansion joints to take up the expansion and contraction caused by temperature, but the individual brine lines are not valved.

Flow of brine through these lines is balanced by means of gates located in the box headers. These gates permit the balancing of the brine flow so that the brine temperature rises 2° F. from inlet box header to outlet box header, and the close control of this temperature permits the maintenance of an ideal ice surface 1 inch thick.

The brine is cooled in a shell and tube cooler which is supplied with refrigeration from a Vilter 2-cylinder 10 $\frac{1}{4}$ x 8 $\frac{1}{2}$ vertical "Freon" compressor operating at 400 r.p.m. and direct connected to a 100-hp. synchronous motor.

Because the transmission of vibration or sound in a theater is particularly undesirable, special precautions were taken to isolate the large refrigerating machine. The compressor and motor, weighing approximately 6,500 lbs. are mounted on a reinforced concrete sub-base weighing 13,500 lbs. This total mass of 10 tons is supported at the four corners by means of Korfund steel spring suspension type vibro-isolators.

The points of support are located above the center of gravity of the machine, motor, and sub-base, and vertical and horizontal stabilizing springs are provided to limit the amount of lateral movement of the

foundation. The compressor suction and discharge lines are equipped with flexible connections.

In operation the compressor and its foundation show a maximum movement of from 0.003 inches to 0.004 inches, and there is no transmission of vibration either to the building structure or to the pipe lines beyond the flexible connections.

"It Happens on Ice" has been so successful that it is now planned to run the show through the summer. An order has recently been placed for an additional spring-isolated compressor to serve as a stand-by during the continual year-around operation of the skating rink.

Koch Refrigerators Prints Portfolio

NORTH KANSAS CITY, Mo.—An attractive and convenient plastic-bound portfolio of catalogs and folders illustrating its line of refrigerated fixtures has been published by Koch Refrigerators here.

Printed in several colors, the portfolio has first a section of photographs of the two Koch plants, and then describes with photos and specifications the following products: Econ-O-Case (double and triple duty), Super Service case, fish and dairy cases, Crispeteria, Econ-O-Miser, florist and bakery refrigerators, Econ-O-Cooler and Duro-Cooler walk-ins, Zero-Stream dry bottle and direct draw beverage coolers, and the firm's cold storage doors.

Unit Coolers Used In Candy Cases

DALLAS, Tex.—Unit coolers to cool candy cases are being installed by Sanger Bros. department store here in its food department. One unit, contained in a square, stainless steel box, is mounted at the center and back of the case.

ICE MAKER

a Masterpiece for Economy

MASTERCRAFT
ADJUSTABLE PAD
AND CARRYING
HARNESS

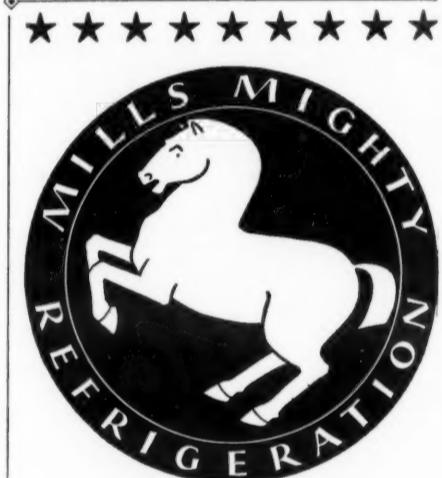
Contract Awarded For Texas Skating Rink

DALLAS, Tex.—Contracts for ice machinery for the skating rink to be built at Fair Park by Ice Sports, Inc. of Dallas headed by Clarence E. Linz, has been awarded Vilter Mfg. Co.

The Vilter company was represented in negotiations here by John A. Heinzelman.

F-M Appoints Disney

DALLAS, Tex.—Air conditioning department of Fairbanks, Morse & Co. here has been placed in charge of M. L. Disney.



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Refrigeration In Super-Markets Calls for Expert Engineering

Editor's Note: This is one of a series of articles which will discuss methods of estimating load requirements, selecting equipment, and making the proper kind of an installation for specific types of commercial refrigeration installations. Sam Moncher, author of these articles, is a refrigeration engineer representing a refrigeration equipment manufacturer in the New York City area, and is the author of books and articles on modern refrigeration engineering practice. It is planned to have these articles cover a wide range and variety of installations.

By Sam Moncher

Growth of the super-market method of food distribution has brought a change in the refrigeration requirements of retailers of dairy products. No longer does the single counter display case or the back wall dairy box suffice for this class of storekeeper. The volume of food products handled by the operators of large dairy departments is such that an extensive refrigerating system is necessary.

Often, the three common types of refrigerators are employed: (1) back wall display refrigerator for tub butter, milk, cream, bulk cheese, and eggs; (2) counter show case for packaged butter and cheeses, lard, yeast, bacon, etc.; (3) a walk in refrigerator for bulk reserve storage.

For the purposes of the relatively short term storage of commercial refrigerators, a temperature of 40°-45° F. is sufficient for the

Survey Sheet for Super-Market Installations

SURVEY SHEET		
WALK IN REFRIGERATOR	DISPLAY CASE	DAIRY DISPLAY REFRIGERATOR
OUTSIDE DIMENSIONS	12' x 10' x 8' high	3' x 5' x 10' long double duty
INSULATION	4" corkboard	3" corkboard
GLASS AREA	none	30 sq. ft. triple glass
MAXIMUM AMBIENT TEMPERATURE	90°	95°
REFRIGERATOR TEMPERATURE	35°	40°
MAXIMUM PRODUCT LOAD	500 lbs. butter and cheese at 55°, 400 lbs. eggs at 90° per 24 hrs.	all food precooled
		100 qts. bottled milk and cream at 55°, 500 qts. milk in cardboard containers at 55°

Table 1—Usage Factors For Dairy Boxes

Empirical usage factors for dairy market refrigerators, expressed in B.t.u. per hour per cubic foot of interior volume, and based on a temperature difference of 50°-60° between ambient temperature and refrigerator.

A. WALK IN REFRIGERATOR	Factor
Size	
Under 300 cu. ft.	4.0
300-500 cu. ft.	2.5
500-700 cu. ft.	2.0
700-1,000 cu. ft.	1.6
1,000-1,500 cu. ft.	1.3

B. DISPLAY REFRIGERATOR	Factor
Size	
Under 100 cu. ft.	10
100-150 cu. ft.	8
150-250 cu. ft.	6

Load Calculations

A HEAT GAIN OF WALK IN REFRIGERATOR

Surface exposed to ambient temperature = 592 sq. ft.
Cubical content = 693 cu. ft.

B.t.u./24 hrs.
Insulation loss = 592 x .06 x 55 x 24 = 47,200
Usage loss = 693 x 2 x 24 = 33,300
(see Table 1)
Product load = 500 x 7 x 20 = 7,000
400 x .8 x 55 = 17,600
Safety factor 10% = 10,500
Total load = 115,600
Hourly load based on 16 hr. operation = 7,200 B.t.u./hr.

B HEAT GAIN OF DISPLAY CASE

Total outside surface = 190 sq. ft.
Glass area = 30 sq. ft.
Net area = 160 sq. ft.
Cubical content = 75 cu. ft.

B.t.u./24 hrs.
Insulation loss = 160 x .09 x 55 x 24 = 19,000
30 x .29 x 55 x 24 = 11,500
(see Table 1)
Usage loss = 75 x 10 x 24 = 18,000

B.t.u./24 hrs.
Total load = 48,500
Hourly load based on 16 hr. operation = 3,000 B.t.u./hr.

C HEAT GAIN OF DAIRY REFRIGERATOR

B.t.u./24 hrs.
Total outside surface = 334 sq. ft.
Glass area = 50 sq. ft.
Net area = 284 sq. ft.
Cubical content = 170 cu. ft.

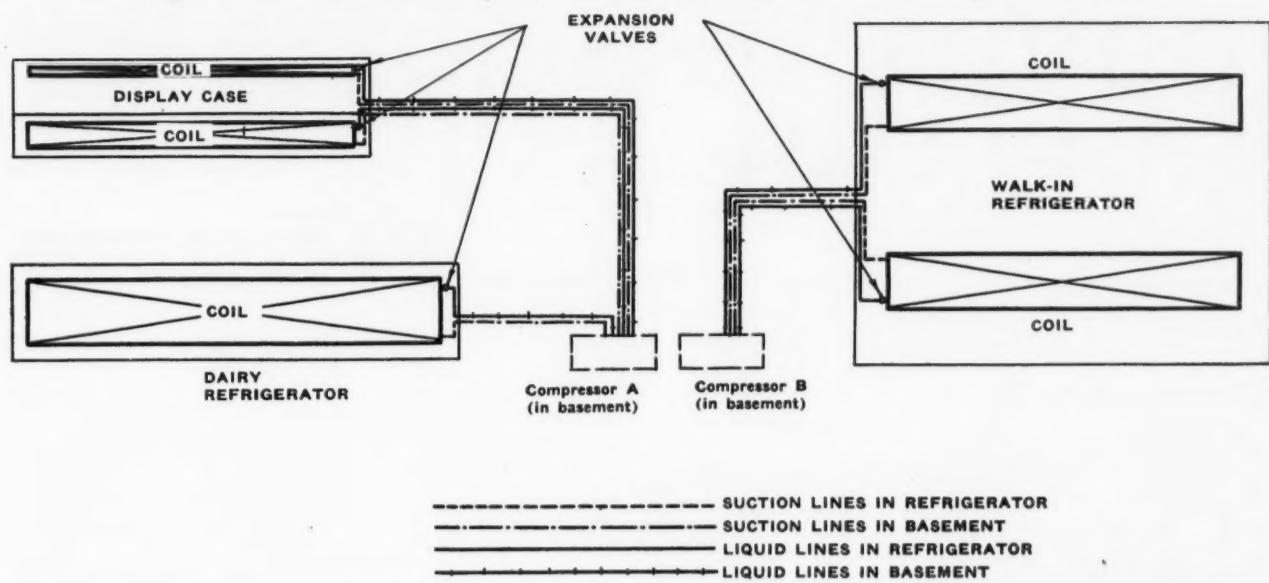
B.t.u./24 hrs.
Insulation loss = 284 x .09 x 55 x 24 = 33,700
50 x .45 x 55 x 24 = 29,800
(see Table 1)
Usage loss = 170 x 6 x 24 = 24,400

B.t.u./24 hrs.
Product load = 300 x 9 x 15 = 4,000
Allowance for containers = 1,000

B.t.u./24 hrs.
Total load = 92,900

Hourly load based on 16 hr. operation = 5,700 B.t.u./hr.

Fig. 1—Installation Involving 3 Refrigerators



The selection of the condensing unit is guided by two factors—(1) the hourly refrigeration load based on 16 hour compressor operation, and (2) the pressure (or, therefore, temperature) of the suction gas.

Inasmuch as a refrigerant temperature of 20° is required in the walk in refrigerator, and 25° in the other two fixtures, it will be necessary to have two distinct suction pressures.

This can be accomplished either by the use of two separate compressors, or by the use of a constant pressure valve in the suction line from the warmer fixtures.

EITHER CARRIES LOAD

A more effective installation, however, would be the use of two compressors multiplexed together so that either could carry the total load in case of a breakdown of the other.

Since an installation of this type is relatively simple, and often (especially in rural communities where the service man may be several hours ride away) may result in the prevention of the spoilage of a considerable quantity of food, it will be described here in detail.

The condensing unit feeding the walk in refrigerator will have a capacity of at least 7,200 B.t.u./hr. at a 20° suction temperature, while the unit taking care of the other two fixtures will produce a minimum of 8,700 B.t.u. with a 25° suction. It will be found that two units each of approximately 1-hp. capacity will produce the work required.

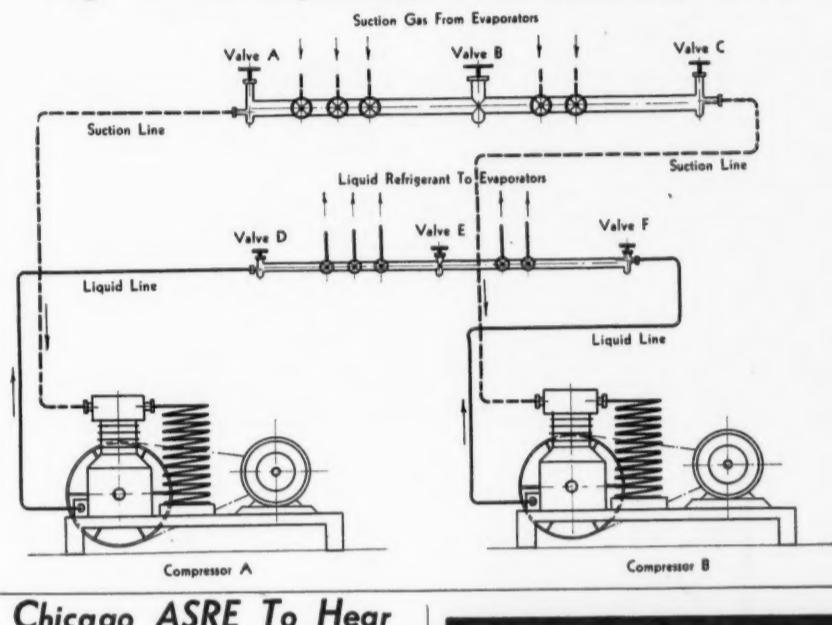
On Fig. 2, compressor "A" represents the unit attached to the 25° evaporators, and compressor "B" the unit on the 20° evaporators.

While each unit is functioning properly, valves "B" and "E" remain closed, permitting each compressor to feed its own set of evaporators, and valves A, C, D, F, remain open.

VALVE MANIPULATION

Should compressor "A" break down, however, then valves "A" and "D" would be shut, and "B" and "E" opened. This would allow compressor "B" to pump liquid to all the evaporators—not sufficient quantity to allow the coils to work at full capacity, to be sure; but perhaps sufficient to prevent a calamitous temperature rise in the refrigerators before the compressor can be repaired.

Fig. 2—Multiplexing of Condensing Units



Chicago ASRE To Hear Food Freezing Talk

By Finnegan

CHICAGO—"The Effect of Frozen Mass Formations of the Freezing Rate of Foods" will be discussed in an illustrated lecture by William J. Finnegan, consulting engineer of Hollywood, Calif., at the next meeting of the Chicago section of American Society of Refrigerating Engineers, planned for May 15.

Mr. Finnegan specializes in food freezing, including plant designs, investigations, developments, surveys, and appraisals.

On April 10 the Chicago group inspected the 1,000-ton refrigeration and air conditioning systems, boilers, and other engineering facilities of the Stevens hotel here.

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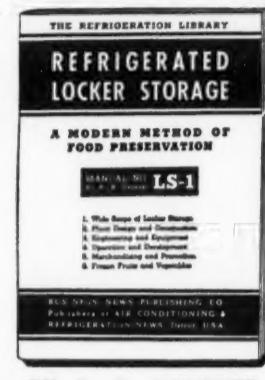
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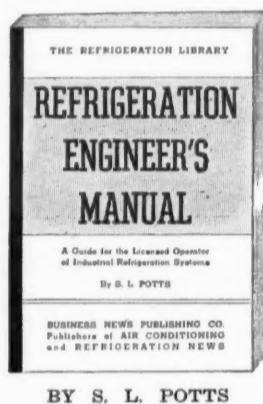
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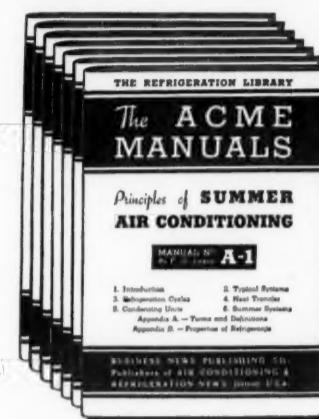
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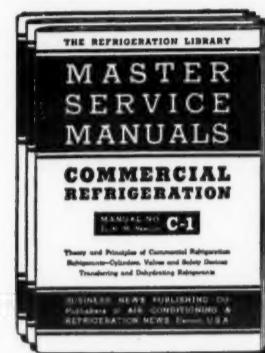
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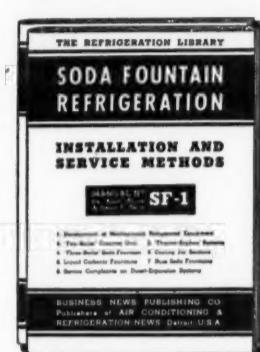
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Operating and Service Methods For Dry-Expansion Counter Freezers

By Arch Black and Dean C. Seitz

Editor's Note: This is one of a series of articles on the servicing of counter-type ice cream freezers, which have been appearing in the issues of AIR CONDITIONING & REFRIGERATION NEWS in the past few months.

This is the first instalment of the section giving information on Mills counter freezers.

The Mills Unit

Since the best known "types" of counter freezer systems have been covered, the following material on Mills counter freezers will only briefly outline the basic principles of the system used in general and only the high spots will be touched on where the system differs from those already explained.

Particular reference will be made to the two-way valve which Mills has used on many of their ice cream counter freezers.

Cycle of Refrigeration of Mills Units

Like other manufacturers, Mills offers many models and combinations in 2½-gal., 5-gal., and 6-qt. freezers, all of which are of the direct expansion type basically similar in certain respects to the direct expansion systems explained for the Taylor and Tuthill freezers.

Mills has offered ice cream counter freezers to the market for some number of years, and like all manufacturers better their product as the years go by, eliminating certain valves and adopting others to make the ice cream counter freezer of today more and more automatic.

Fig. 35 shows an installation diagram of the older type, and the reader will readily note from this diagram that in the later type equipment the different units have been combined into one unit. From this diagram the service engineer can readily visualize the system with or without hardening cabinet or dispensing cabinet.

The Mills freezer cylinder is composed of two cylinders, the smaller of which is slightly longer and about 4 inches less in diameter, and it is placed eccentrically within the larger cylinder to form a greater space on the top.

The ends of the larger cylinder are silver soldered, forming a sealed chamber into which the liquid refrigerant is introduced at the bottom by means of a thermostatic expansion valve. The greater space at the top of the cylinder allows active boiling and complete evaporation of the refrigerant.

Suction line is connected to the top of the cylinder and the vaporized refrigerant is drawn to the compres-

sor through the freezer shut-off valve. The liquid supply line for the mix compartment in the case of the remote-type models 2½ and 5-gal. freezers with mix compartments, and for the hardening cabinet in the case of the self-contained models, is connected at the bottom of the cylinder at a point immediately above the expansion valve.

When the freezer cylinder is not in use and the control valve is in the "off" position, practically all the liquid refrigerant and oil is drained from the freezer cylinder and returned to the compressor through the hardening cabinet refrigerating coils. After the refrigerant is nearly all removed, the pressure in the freezer cylinder will be reduced to a point at which the freezer expansion valve will open and admit more refrigerant.

The hardening cabinet or mix compartment expansion valve is then being supplied with refrigerant through the freezer expansion valve. However, the pressure at which the freezer expansion valve operates is sufficiently high so that in normal use no frost accumulates on this valve.

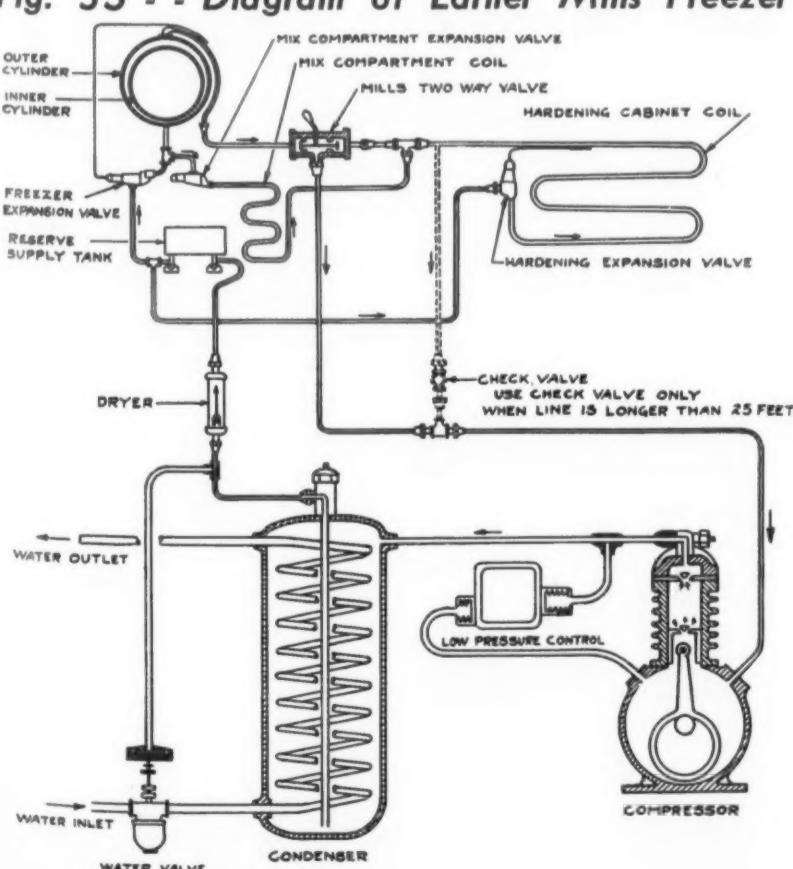
Incorporated on the hardening cabinet suction line is the check valve with the direction of flow toward the condensing unit, and when the freezer cylinder is in use the increased pressure on the low side causes this check valve to remain closed and will not permit the heat-laden vapor from the cylinder to enter the cold hardening cabinet coils. When the freezing operation is complete, suction pressure will be lowered, which allows the check valve to open, permitting the hardening cabinet to function as normally.

To control the pressure which may exist in the freezer cylinder in the event that it be sterilized with live steam or extremely hot water, and to prevent damage to the freezer cylinder or expansion valve, Mills has connected a similar check valve to that explained above to the bottom of the freezer cylinder supply line immediately above the expansion valve and directly opposite the hardening or mix compartment liquid supply line.

The other end of this check valve is connected into the high side of the system either at the compressor head or the liquid line and the direction of flow in this valve is toward the high side of the system.

When this valve is so connected, it forms an automatic release device and if at any time the pressure in the freezer cylinder for one reason or another exceeds that which exists on the high side of the system, the check valve will open and allow the pressure to equalize. In normal operation, however, the high side pressure causes this valve to remain closed and it functions automatically and no resetting is required.

Fig. 35 - Diagram of Earlier Mills Freezer



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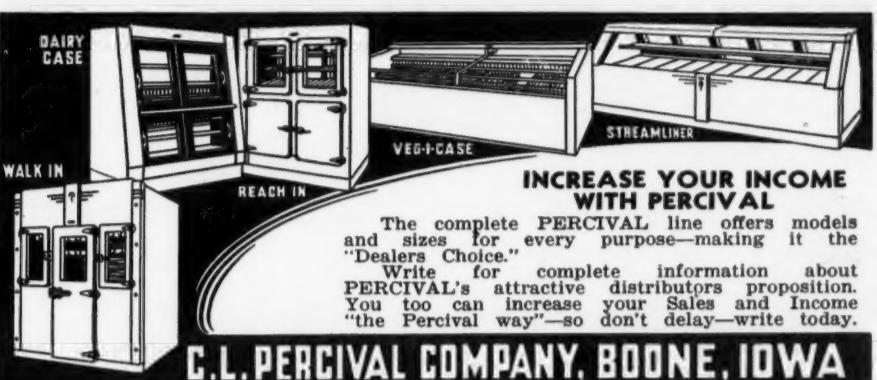
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Lincoln Square Recreation, 4874 Lincoln.	Standard-Manz	15.00	17.00
Madison Athletic Club, 4711 W. Madison.	Standard Air-Farwell	20.00	27.50
Pilsen Recreation, 1511 W. 18th St.....	Baker-Burge	15.00	17.00

BARBER SHOPS

Morin Hotel, Clark-Madison	Lipman	5.00	5.50
Terminal Barber Shop, 1 N. LaSalle.....	Carrier-Air Comfort	5.00	5.50

BEAUTY SHOPS

Forgette Beauty Salon, 1604 W. 63rd.....	General Electric Assem.	10.00	10.00
Forgette Beauty Salon, 1421 W. 79th.....	General Electric Assem.	10.00	10.00

CLUB

Covenant Club, 10 N. Dearborn St.....	General Electric-Adelman	20.00	22.00
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DOCTORS AND DENTISTS

Dr. Lewis L. Brown, 2376 E. 71st St....	Standard-Farwell	1.50	1.75
Dr. M. S. Corbett, 1308 W. Lake.....	Standard-Farwell	7.50	8.00
Dr. Marshall Field, 1806 Wilson.....	Carrier-Air Comfort	10.00	12.00
St. Clair Hotel, 162 E. Ohio.....	General Elec.-Fairbanks	3.00	3.50
Drs. Zurndorfer & Schmidt, 622 Diversey Parkway	Carrier-Air Comfort	3.00	3.75

FUNERAL PARLORS

Alt, Otto & Son, 3224 Montrose.....	Westing-Kroeschell	7.50	9.00
Bacigalupo, C., 3500 W. Harrison St.	Frick-Midwest	15.00	17.25
Bartz, Wm., 7032 S. Wentworth.....	Standard	10.00	10.00
Beevar & Son, 5218 S. Kedzie.....	Baker-Burge	15.00	17.00
Blake & Lamb, 712 W. 31st St.....	Fairbanks-Morse	7.50	10.00
Burke, John, 5018 W. Chicago Ave.....	General Elec.-III. Htg.	5.00	5.50
Coletta & Sons, 2600 Wentworth.....	Westing-M. & M., Inc.	3.75	3.75
Deir, John J., 4048 W. Harrison.....	Frick-Midwest	15.00	16.00
De Young, John, 7030 S. Halsted.....	Lipman-Mid. Vent.	10.00	11.00
Donnellan Funeral Parlor, 7659 S. Jeffery.....	Fairbanks-Morse-Hanley	10.00	12.00
Edgar, D. W. & Sons, 4821 N. Damen Ave.....	Carrier-Air Comfort	5.00	5.50
Gratch Undertaking, 2237 W. Division.....	Lipman-Acord	20.00	23.00
Kral & Adolf, 1021 W. 19th St.....	Trane-Grizzel Eng.	5.00	6.00
Liddy Bros., 4920 Irving Park.....	York-Westernlin & Camp.	15.00	18.00
Maloney, Jos. T., 2958 W. Fullerton Ave.....	Frigidaire-Adv. Heating	3.00	3.25
McInerney, T., 4635 S. Wallace.....	Trane-Godfrey	10.00	11.00
McPhee Undertaking, 4611 N. Lincoln.....	Frigidaire-Kohlm	5.00	5.75
Metropolitan Funeral, 4430 S. Parkway.....	Trane-Doherty	25.00	28.00
Schielke, Jos., 2243 N. Leavitt St.....	Gen. Elec.-III. Heating	3.00	3.25
Schmidt, Ernest E., 2058 W. Belmont Ave.....	Standard-Farwell	5.00	5.50
Tancl & Sons, 3821 W. 26th St.....	Howe-De Vry	3.00	3.50
Thompson, Geo. R., 1008 E. 79th St.....	Excell-Hilger	5.00	5.50
Urbanek Funeral Parlor, 3814 W. 26th St.....	Baker-Burge	7.50	8.50
Young, A. P., 8210 S. Racine Ave.....	Howe	5.00	5.25

HOSPITALS

St. Joseph's Hospital, 2100 N. Burling.....	Trane-Midwest	5.00	5.50
Wesley Memorial Hospital, 240 E. Superior.....	Trane-Douglas	200.00	322.00

HOTELS

Atlantic Hotel, 314 S. Clark St. (Add'l)....	Wittenmeier	40.00	40.00
Stevens Hotel Ballroom, 700 S. Michigan.....	Carrier-Air Comfort	50.00	55.00
Y.M.C.A. Hotel, 826 S. Wabash Ave.....	Carrier-Koretaire	30.00	36.00

INDUSTRIAL, BAKERY

Schulze Biscuit Co., 3501 S. Racine Ave...	Carrier	65.00	87.00
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INDUSTRIAL, CANDY

Allegretto, Digiorgio, 183 N. Racine Ave....	Frick-Midwest	5.00	5.50
Bloomer Chocolate Co., 600 W. Kinzie (Add'l)	Carrier-Air Comfort	10.00	13.00
Boulevard Candy Co., 1925 S. Western Ave.....	Mills	10.00	11.00
Confections, Inc., 4614 W. Washington (Add'l)	Carrier Construction	15.00	17.00
Currier-Lee Whse., 427 W. Erie (Add'l)...	Gen. Elec.-Adv. Heating	5.00	5.00
Joy Candy Co., 1314 W. 7th St.....	Carbondale-Natl. Korec.	35.00	41.00
Shutter Candy Co., 4730 W. Augusta.....	Carrier	30.00	30.00
Stevens Candy Kitchen, Inc., 481 Milwaukee.....	General Refrig.-Lipman	5.00	5.50
Stevens Candy Kit., Inc., 611 N. Sacramento	Trane-Davis	45.00	48.00

INDUSTRI

**Westinghouse Revises
'Quick Selector'
Catalog**

EAST PITTSBURGH, Pa.—A 64-page 1941 revision of the popular "Quick Selector" catalog is announced by Westinghouse Electric & Mfg. Co.

Subjects covered are safety switches, nofuz breakers, multi-breakers, panel boards, motor controls, and motors. Revisions include equipment additions, price changes, and up-to-date data concerning application.

Information has been rearranged and made more complete on some items.

**Looking for a
TRAINED MAN?**

Call on the U.E.I. Placement Bureau for a trained, reliable, competent worker. For over 14 years U.E.I. trained men have been making good employees for all positions requiring technical knowledge or mechanical ability. Remember, the U.E.I. Placement Bureau Service is FREE to you and your prospective employee. Try it.



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Maximum Efficiency,
Trouble-Free Performance

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VALVES**

SAF-T-LOC Individual Lockers

have the call. Many unusual advantages including the new convertible.

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ENGINEERED TO YOUR EXPECTATIONS

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**PENN AUTOMATIC
CONTROLS AND
SWITCHES**

Protect the reputation of your product

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PENN ELECTRIC SWITCH CO.

GOSHEN, INDIANA



3 CATALOGS IN 1

HERMETIC UNITS - COMPRESSORS - PARTS

FRIGIDAIRE - KELVINATOR - MORGE - G-E

Complete Line Refrigeration Parts - Tools - Supplies

WRITE FOR YOUR COPY ON YOUR LETTERHEAD

SERVICE PARTS CO.

MELROSE PARK, ILLINOIS



1940 Chicago Installations (Cont.)

Name and Address

**Equipment and
Installer**

Tonnage

Hp.

Quinlan & Tyson, 1 N. LaSalle St.	General Electric-Wendt	7.50	8.25
Reliable Tobacco Co., 1414 S. Halsted.	Lipman-Bloomer	3.00	3.25
Safety Socket Screw Corp., 4446 N. Knox.	Carrier-Air Comfort	3.00	3.50
Schweitzer Co., Samuel, 660 W. Lake St.	Carrier-Adv. Heating	2.00	2.25
Sherman Klove Co., 3531 W. 47th St.	Carrier-Air Comfort	10.00	11.50
Sprague Warrier & Co., 461 N. Sacramento.	York-Adv. Heating	100.00	115.00
Standard Brands, 430 Grant Place.	Westingh'se-Kroeschell	51.00	58.00
Standard Distributing Co., 2222 Diversey.	Frigidaire-Wendt	5.00	5.75
Steel Sales Corp., 3322 S. Pulaski.	Frigidaire-Wendt	50.00	60.00
Strauss Bldg., 310 S. Michigan	Carrier	200.00	210.00
Strauss Bldg., 25th Floor, 310 S. Michigan.	Carrier-Mehr. & Hansen	7.50	8.50
Studebaker Sales, 2559 S. Michigan.	Frigidaire	3.00	3.50
Tower Finance Co., 40 N. Dearborn St.	Carrier-Prentis	7.50	8.50
Underwriter's Laboratory, 207 E. Ohio.	York-Westerlin & Camp.	80.00	102.50
Underwriter's Salvage, 215 S. Laflin.	Westingh'se-Kroeschell	7.50	9.50
United Light & Power, 220 S. Clark St.	Standard	2.50	2.50
Universal Film Exchange, 1301 S. Wabash.	Westingh'se-Kroeschell	7.00	9.00
Wagner Sign, 214 S. Hoyne Ave.	Frigidaire-Wendt	3.00	3.25
Western Railways, 175 W. Jackson.	Trane	25.00	30.00
Wilding Picture Prod., 100 E. Ohio St.	Frigidaire-Wendt	5.00	6.00
Wilks, L. J., 1406 S. Halsted St.	Fairbanks-M.-Baldwin	3.00	3.50
Wrigley Bldg., 400 N. Michigan (Add'l).	Carrier-Kroeschell	350.00	400.00

OFFICES, PRIVATE

Atlas Collapsible Tube, 1757 N. Kimball.	Gen. Elec.-Murphy & M.	2.00	2.25
Denmark, Inc., Emil, 3860 Ogden.	Frigidaire-Wendt	3.00	3.50
Freeman, C. Y., 72 W. Adams St.	Brunswick-Kroeschell	7.50	9.50
Lindberg Steel Treating, 218 N. Laflin.	Standard-Farwell	1.00	1.00
Lord & Thomas, 919 N. Michigan Ave.	Frigidaire-Kohlman	0.75	0.75
Morrison Hotel, Clark-Madison	Standard	3.00	3.25
Seng Co., 1450 N. Dayton	Standard-Farwell	2.00	2.25

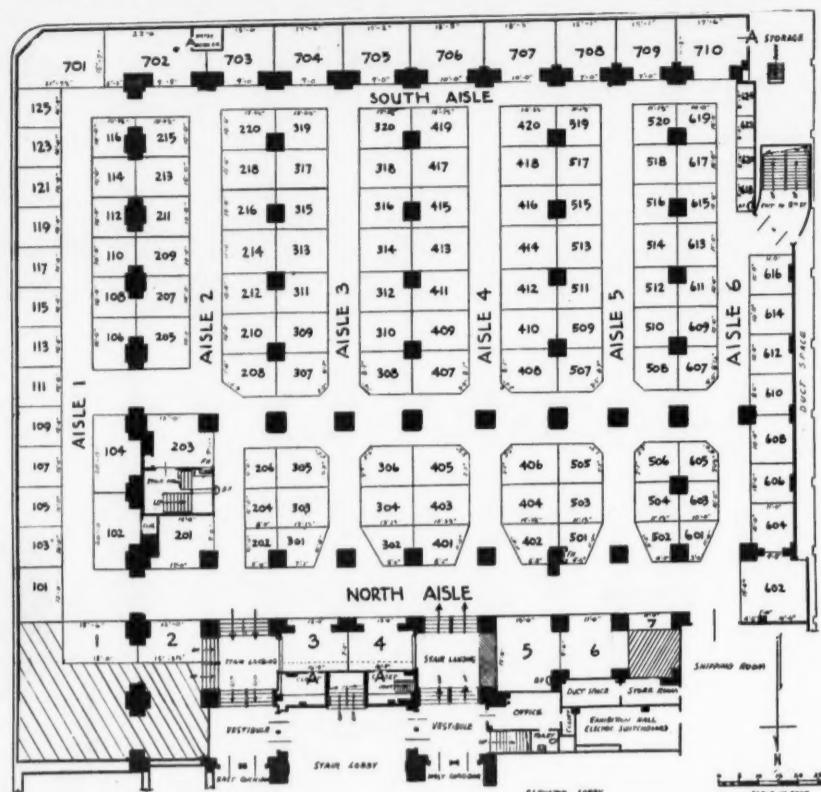
RESIDENCES

Ballert, Wm., 6217 N. Campbell.	Frigidaire-Kohlman	3.00	3.25
Goble, E. H., 2139 W. 115th.	Fairbanks-Morse	3.00	3.50
Linner, Carl G., 112 Loyola.	Carrier-Air Comfort	1.00	1.00
St. Joseph's & St. Ann's, 3351 S. California.	Mills-Hoier	7.50	9.00

RESTAURANTS

Alexander's Restaurant, 1376 E. 63rd St.	York-Westerlin & Camp.	10.00	11.50
Arden Cocktail Lounge, 1340 E. 53rd St.	Mills-Refrig. Mainten.	2.50	3.00
Airline Inn, 4801 W. 63rd St.	Trane-Godfrey	7.50	7.50
B/G Foods, Inc., 118 S. Michigan Ave.	Carrier-Air Comfort	30.00	39.50
B/G Foods, Inc., Rush & Oak.	Carrier-Wendt	15.00	18.00
B/G Foods, Inc., 79 E. South Water.	Carrier-Air Comfort	25.00	28.00
Barney's Restaurant, 739 W. Randolph St.	Super-Cold	6.00	6.50
Bar-O-Que, 1510 E. 53rd St.	Reliable	7.50	9.00
Benton Grill, 76 W. Lake St.	Frick-Midwest	5.00	5.50
Bradley Tavern, 414 S. State St.	Reliance-Reliable	5.00	6.50
Briggs Restaurant, 334 S. Wells.	Reliable Refrigeration	10.00	11.50
Burlington Restaurant, 7909 S. Ashland.	Carrier-Air Comfort	5.00	5.50
Cafe Bohemia, 136 S. Clinton St.	Westingh'se-Kroeschell	10.00	12.00
Camp Restaurant, 1309 E. 57th St.	Gen. Elec.-Murphy & M.	5.00	5.50
Cape Cod Grill, 59 W. Jackson St.	Frigidaire-Kohlman	3.00	3.25
Capital Cocktail Lounge, 167 N. State St.	Lipman-Gen. Refrig.	10.00	11.50
Clover Bar, 172 N. Clark St. (Add'l).	Frick-Midwest	5.00	5.50
Country Club Apt. Hotel, 6930 S. Shore...	Baker-Burge	5.00	5.50
Daisy Donut, 1542 E. 53rd St.	Frigidaire Assembled	10.00	13.00
Daisy Donut, 107 S. LaSalle St.	Frigidaire-Wendt	7.50	8.50
Deikus, Stanley, 2958 S. Union.	General Electric	5.00	5.50
Doherty, Dennis J., 5008 S. Cottage Grove.	Hilger-Excel	5.00	5.50
Don The Beach Comber, 101 E. Walton (Ad.)	Westingh'se-Kroeschell	10.00	13.00
Drake Hotel Cocktail, 140 E. Walton.	York-Westerlin & Camp.	20.00	25.00
Eden Cafe, 145 W. North.	Howe-De Vry	1.50	1.75
Elfin Sandwich Shop, 38 W. Randolph.	Frick-Midwest	10.00	11.00
Fort Dearborn Hotel, 117 W. Van Buren.	Westingh'se-Kroeschell	25.00	25.00
Gayety Village, 4035 Fullerton.	Mills-Cont. Refrig.	5.00	5.50
Golden Gate Restaurant, 87 W. Randolph.	Frick-Midwest	15.00	17.00
Good Earth Restaurant, 2330 W. Devon.	Baker-Burge	5.00	5.75
Grand Castle, 2431 N. Harlem Ave.	Reliable	7.50	8.50
Green Mill Restaurant, 4804 Broadway.	Carrier-Douglas	10.00	100.00
Harding's Restaurant, 21 S. Wabash Ave.	Carrier-Douglas	60.00	67.50
Harmony Cafeteria, 15 S. Wabash Ave.	York-Westerlin & Camp.	15.00	18.00
Harry's Sandwich Shop, 6727 N. Sheridan.	Mills	5.00	5.50
Hesperia Restaurant, 545 N. Rush St.	Reliable Refrigeration	7.50	9.00
Hi-Hat Restaurant, 871 N. Rush (Add'l).	Curtis-Air Contr.	3.00	3.25
Hoe-Sai Gai Chicken Shop, 3929 W. Madison.	Curtis-Air Contr.	5.00	5.75
Hour Glass Cocktail, 1066 Argyle.	Carbone-D-Nat'l Korect.	5.00	5.75
Hyde Park Piccanniny, 1411 E. 53rd.	York-Westerlin & Camp.	25.00	30.00
Irving Park Y.M.C.A., 4251 W. Irving Park.	Howe-De Vry	1.50	1.75
Ivanhoe Restaurant, 3000 N. Clark.	Frick-Midwest	10.00	11.00
Jade Restaurant, 4027 Irving Park.	Westingh'se-Murphy & M.	10.00	11.50
Julia King Ice Cream, 3201 Broadway.	Westingh'se-Murphy & M.	10.00	11.50
Julia King Ice Cream, 7610 N. Paulina.	Westingh'se-Murphy & M.	10.00	13.00
Julia King Ice Cream, 2138 W. 71st St.	Westingh'se-Murphy & M.	10.00	13.00
K & R Bier-Stube, 4341 W. Division St.	Westingh'se-Murphy & M.	10.00	13.00
Karman Restaurant, 1231 E. 63rd St.	Westingh'se-Murphy & M.	10.00	13.00
Karsens Restaurant, 721 W. 63rd St.	Westingh'se-Murphy & M.	10.00	13.00
Kinzie Grill, 157 W. Kinzie.	Westingh'se-Murphy & M.	10.00	

New Floor Plan For the Show



Layout of Chicago's Hotel Steven's main exhibition hall has been streamlined for the 1942 All-Industry Refrigeration & Air Conditioning Exhibition (to be held next January). A cross aisle has been cut through the middle of the lower floor from the east to the west, thus giving 20 additional booths frontages on two aisles. A new

system of booth numbering has been adopted under which all booths carrying odd numbers are located on the east side of the north and south aisles; all even numbered booths on the west side. Drawings for space will be held during the Rema annual meeting next week in French Lick Springs, Ind.

Wolf Transferred To St. Louis
By Cutler-Hammer

ST. LOUIS—A. M. Wolf, formerly with the Detroit office of Cutler-Hammer, Inc., has been transferred to the company's St. Louis office in a sales engineering capacity.

In the St. Louis office, Mr. Wolf will work under G. E. Booth, manager of Cutler-Hammer's St. Louis sales territory.

ALL COPPER PLATE COILS
Ideal for Counter Display, Salad Pans, Sharp Freezer Service, and Low Temperature Service.

KRAMER-TRENTON CO.
TRENTON, N. J.

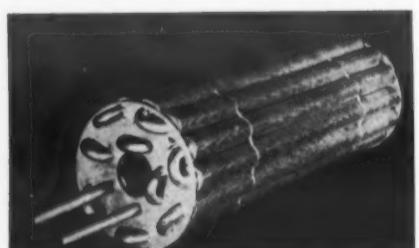
Anaconda Copper
Refrigeration Tubes

Easily bent!



THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices, Waterbury, Conn.

No Joints! No Leaks



This Rome Jointless Water Cooled Condenser is a typical example of Rome's ability to provide trouble free condensing equipment. Rome Water Cooled Condensers are used by many leading compressor manufacturers. Write for complete information.

ROME-TURNEY
RADIATOR COMPANY
222 Canal Street
ROME, N. Y.

Big Gains Continued In Retail Volume

(Concluded from Page 1, Column 2)
cording to figures compiled by Dallas Power & Light Co.

February sales this year totaled 1,361 units valued at \$190,540, compared with last year's January-February sales total of 1,355 units valued at \$243,900. Sales for the first two months of this year totaled 2,443 units valued at \$342,020.

A more complete tabulation of unit sales of major appliances by dealers in the Dallas utility's territory follows. Comparisons with 1940 figures are given where available.

Appliance	Feb., 1941	Feb., 2 Mos., 1940	2 Mos., 1941	2 Mos., 1940
Household				
Refrigerators	1,361	742	2,443	1,355
Ranges	5	1	12	4
Water Heaters	1	...
Radios	1,956	1,689	4,074	3,090
Washers	302	225	622	378
Vacuum Cleaners	571	465	1,218	878
Dishwashers	4	1	7	1
Ironers	30	...	54	...
Air Conditioning Systems	2	...	2	...
Evaporative Coolers	1	...
Commercial				
Refrigerators	18	...	37	...
Water and Beverage Coolers	42	...	55	...
Low Temperature Cabinets	3	...	5	...
Air Conditioning Units	5	...	7	...
Air Conditioning Systems	1	...	1	...
Evaporative Coolers	2	...	14	...

Commercial

Refrigerators Water and Beverage Coolers Low Temperature Cabinets Air Conditioning Units Air Conditioning Systems Evaporative Coolers

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